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PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53(c).

DOCKET NUMBER: D00590.70042.US
Express Mail Label No. EV 292547847 US
Date of Deposit: June 17, 2003

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[ ] ***Additional inventors are being named on the separately numbered sheets attached hereto.***

TITLE OF THE INVENTION (280 characters max)

AMINO ACID SEQUENCES USEFUL FOR DEVELOPING COMPOUNDS FOR THE PREVENTION AND/OR TREATMENT OF METABOLIC DISEASES AND NUCLEOTIDE SEQUENCES ENCODING SUCH AMINO ACID SEQUENCES

CORRESPONDENCE ADDRESS

CUSTOMER NUMBER: **23628**

ENCLOSED APPLICATION PARTS *(check all that apply)*

[X] Specification - Number of Pages = 119

[X] Sequence Listing (CD-ROM)

[X] Drawing(s) - Number of Sheets 2

[X] Application Data Sheet, See 37 CFR 1.76 = 4 pages

[X] Return receipt postcard

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

[X] No

[ ] Yes, the name of the U.S., Government Agency and the Government Contract Number are:

[ ] Other:

METHOD OF PAYMENT *(check all that apply)*

[X] A check is enclosed to cover the Provisional Filing Fees.

[X] The Commissioner is hereby authorized to charge any additional fees or credit overpayment to Deposit Account 23/2825. A duplicate of this sheet is enclosed.

[X] Small Entity Status is claimed.

PROVISIONAL FILING FEE AMOUNT **$ 80.00**

JUNE 17, 2003
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APPLICATION DATA SHEET

Application Information

Application number::	not yet assigned
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Subject Matter::	Utility
Suggested Classification::	
Suggested Group Art Unit::	
CD-ROM or CD-R?:	Yes
Sequence Submission?:	Yes (CD-ROM)
Computer Readable Form (CRF)?::	No
Number of copies of CRF::	0
Title::	AMINO ACID SEQUENCES USEFUL FOR DEVELOPING COMPOUNDS FOR THE PREVENTION AND/OR TREATMENT OF METABOLIC DISEASES AND NUCLEOTIDE SEQUENCES ENCODING SUCH AMINO ACID SEQUENCES
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Application Data Sheet
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Representative Information

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AMINO ACID SEQUENCES USEFUL FOR DEVELOPING COMPOUNDS FOR THE PREVENTION AND/OR TREATMENT OF METABOLIC DISEASES AND NUCLEOTIDE SEQUENCES ENCODING SUCH AMINO ACID SEQUENCES

The present invention relates to nucleotide sequences that are useful in the pharmaceutical field.

In particular, the invention relates to nucleotide sequences that encode and/or may be used to express amino acid sequences that are useful in the identification and/or development of compounds with (potential) activity as pharmaceuticals, in particular of compounds for the prevention and/or treatment of metabolic diseases such as diabetes and obesity. These nucleotide sequences, which will be further described below, will also be referred to herein as "*nucleotide sequences of the invention*".

The invention also relates to the amino acid sequences - such as proteins and/or polypeptides - that are encoded by, and/or that may be obtained by suitable expression of, the nucleotide sequences of the invention. These amino acid sequences, which will be further described below, will also be referred to herein as "*amino acid sequences of the invention*".

The invention also relates to the use of the nucleotide sequences of the invention, preferably in the form of a suitable genetic construct as described below, in the transformation of host cells and/or host organisms, for example for the expression of the amino acid sequences of the invention. The invention also relates to host cells and/or host organisms that have been transformed with the nucleotide sequences of the invention and/or that can express the amino acid sequences of the invention.

The invention further relates to methods for the identification and/or development of compounds that can modulate the (biological) activity of the amino acid sequences of the invention, in which the abovementioned nucleotide sequences, amino acid sequences, genetic constructs, host cells and/or host organisms are used. Such methods which will usually be in the form of an assay or screen, as will also be further described below.

The invention also relates to the use of the nucleotide sequences, amino acid sequences, genetic constructs, host cells and/or host organisms of the invention in (methods for) identifying and/or developing compounds that can modulate the (biological) activity of the amino acid sequences of the invention.

Also, the invention also relates to compounds that can modulate the (biological) activity of the amino acid sequences of the invention, to compositions that contain such compounds, and to the use of such compounds in the preparation of such compositions.

In particular, the invention relates to such compositions that are in the form of pharmaceutical compositions, and more in particular in the form of pharmaceutical compositions for the prevention or treatment of metabolic diseases such as diabetes or obesity, and also to the use of compounds that can modulate the (biological) activity of the amino acid sequences of the invention in the preparation of such pharmaceutical compositions.

The invention further relates to the use of the nucleotide sequences, amino acid sequences, genetic constructs, host cells and/or host organisms of the invention in (methods for) identifying and/or developing compounds that can be used in the prevention or treatment of metabolic diseases.

Other aspects, embodiments, applications and advantages of the present invention will become clear from the further description below.

The present invention was established from the finding that the amino acid sequences of the invention are involved in metabolic processes (as further described below) and thus can be used as (potential) "target(s)" for *in vitro* and/or *in vivo* interaction with chemical compounds and other factors (with the term "*target*" having its usual meaning in the art, vide for example the definition given in WO 98/06737), and also from the finding that the nucleic acid sequence and amino acid sequences of the invention are involved in metabolic diseases. Consequently, compounds and/or factors that have been identified as interacting with the amino acid sequences of the invention (e.g. by the methods as described hereinbelow) may be useful as active agents in the pharmaceutical field, and in particular for the prevention and treatment of metabolic diseases. All this is supported by the following experimental data/observations:

- In an experimental model for fat handling, metabolism and storage using the model organism *C. elegans* (which model is further described in the Examples), downregulation of each of the *C. elegans* genes of SEQ ID NOs: 2, 9, 18, 27, 38, 50, 51, 63, 73, 83, 94, 101, 107, 116, 126, 135, 144, 159, 166, 173, 181, 188, 195, 202, 210, 219, 228, 236, 245, 252, 259, 275, 292, 299, 308, 320, 329, 336, 347, 355, 364, 371, 384, 392, 401, 408, 415,

424, 433, 442, 449, 462, 468, 476, 491, 502, 508 and/or 519 (vide Table 1) by RNA interference strongly reduces the fat storage phenotype in said nematode.

Some particularly preferred examples of nucleotide sequences of the invention are:

- the nucleotide sequences of SEQ ID NOs: 2, 9, 18, 27, 38, 50, 51, 63, 73, 83, 94, 101, 107, 116, 126, 135, 144, 159, 166, 173, 181, 188, 195, 202, 210, 219, 228, 236, 245, 252, 259, 275, 292, 299, 308, 320, 329, 336, 347, 355, 364, 371, 384, 392, 401, 408, 415, 424, 433, 442, 449, 462, 468, 476, 491, 502, 508 and/or 519 (vide Table 1), which are sequences derived from the nematode worm *C. elegans*; and
- the human orthologs of said *C. elegans* sequences, as may be identified by bioinformatic comparison of the *C. elegans* sequence with the human genome. Some preferred, but non-limiting examples of such human orthologues are the sequences of SEQ ID NOs: 7, 14, 23, 25, 32, 34, 36, 43, 45, 47, 49, 56, 58, 61, 68, 70, 78, 80, 88, 90, 92, 99, 112, 114, 121, 123, 131, 133, 140, 142, 149, 151, 153, 155, 157, 164, 171, 179, 186, 193, 200, 207, 215, 224, 226, 233, 241, 243, 250, 257, 264, 266, 268, 270, 273, 280, 284, 286, 290, 297, 306, 313, 315, 318, 325, 327, 334, 341, 343, 345, 360, 362, 369, 376, 378, 380, 382, 397, 399, 406, 413, 420, 429, 431, 438, 440, 447, 454, 456, 458, 460, 474, 481, 483, 485, 487, 489, 496, 499, 513, 515, 517, 524 and/or 526 (vide Table 1).

Generally herein, the use of these human nucleotide sequences and/or the use of nucleotide sequences derived therefrom (as further defined below by the term "nucleotide sequences of the invention" in its broadest sense) will be preferred, in particular when the invention is used to develop compounds for pharmaceutical use.

In a broader sense, the term "*nucleotide sequence of the invention*" also comprises:

- parts and/or fragments of any of the nucleotide sequences of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526;

- (natural and/or synthetic) mutants, variants, alleles, analogs, orthologs (hereinbelow collectively referred to as "*mutants*") of any of the nucleotide sequence of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526; in which said mutants are as further described below;
- parts and/or fragments of such (natural or synthetic) mutants;
- nucleotide fusions of any of the nucleotide sequence of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526 (or a part or fragment thereof) with at least one further nucleotide sequence;
- nucleotide fusions of (natural or synthetic) mutants (or a part or fragment thereof) with at least one further nucleotide sequence;

in which such mutants, parts, fragments and/or fusions are preferably as further described below.

The invention also comprises different splice variants of the above nucleotide sequences.

Some particularly preferred examples of amino acid sequences of the invention are:

- the amino acid sequences of SEQ ID NOs: 1, 8, 17, 26, 37, 50, 62, 72, 82, 93, 100, 106, 115, 125, 134, 143, 158, 165, 172, 180, 187, 194, 201, 209, 218, 227, 235, 244, 251, 258, 274, 291, 298, 307, 319, 328, 335, 346, 354, 363, 370, 383, 391, 400, 407, 414, 423, 432, 441, 448, 461, 467, 475, 490, 501, 507 and/or 518 which are sequences derived from the nematode worm *C. elegans (*see also Table 1*)*; and
- the human analogs of said *C. elegans* sequence, as may be identified by bioinformatic comparison of the *C. elegans* sequence with the human genome. Some preferred, but non-limiting analogs are given in SEQ ID NOs: 6, 13, 15, 16, 22, 24, 31, 33, 35, 42, 44, 46, 48, 55, 57, 59, 60, 67, 69, 71, 77, 79, 81, 87, 89, 91, 98, 105, 111, 113, 120, 122, 124, 130, 132, 139, 141, 148, 150, 152, 154, 156, 163, 170, 177, 178, 185, 192, 199, 206, 208, 214, 216, 223, 225, 232, 234, 240, 242, 249, 256, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 296, 303, 304, 305, 312, 314, 316, 317, 324, 326, 333, 340, 342, 344, 351, 352, 353, 359, 361, 368, 375, 377, 379, 381, 388, 389, 390, 396, 398, 405, 412, 419, 422, 428, 430, 437, 439, 446, 453, 455, 457, 459, 466, 472, 473, 480, 482, 484, 486, 488, 495, 497, 498, 500, 506, 512, 514, 516, 523 and/or 525.

In a broader sense, the term "amino acid sequence of the invention" also comprises:

- parts and/or fragments of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.
- (natural and/or synthetic) mutants, variants, alleles, analogs, orthologs (hereinbelow collectively referred to as "analogs") of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125,

130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525;

- parts and/or fragments of such analogs;
- fusions of the amino acid sequence of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.
- (or a part or fragment thereof) with at least one further amino acid residue or sequence;
- fusions of the amino acid sequence of an analog (or a part or fragment thereof) with at least one further amino acid residue or sequence;

in which such mutants, parts, fragments and/or fusions are preferably as further described below.

The term "*amino acid sequence of the invention*" also comprises "immature" forms of the abovementioned amino acid sequences, such as a pre-, pro- or prepro-forms and/or fusions with suitable leader sequences. Also, the amino acid sequences of the invention may have been subjected to post-translational processing and/or be suitably glycosylated, depending upon the host cell or host organism used to express/produce said amino acid

sequence; and/or may be otherwise modified (e.g. by chemical techniques known per se in the art).

Generally herein, the use of the human amino acid sequence of SEQ ID NOs: 6, 13, 15, 16, 22, 24, 31, 33, 35, 42, 44, 46, 48, 55, 57, 59, 60, 67, 69, 71, 77, 79, 81, 87, 89, 91, 98, 105, 111, 113, 120, 122, 124, 130, 132, 139, 141, 148, 150, 152, 154, 156, 163, 170, 177, 178, 185, 192, 199, 206, 208, 214, 216, 223, 225, 232, 234, 240, 242, 249, 256, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 296, 303, 304, 305, 312, 314, 316, 317, 324, 326, 333, 340, 342, 344, 351, 352, 353, 359, 361, 368, 375, 377, 379, 381, 388, 389, 390, 396, 398, 405, 412, 419, 422, 428, 430, 437, 439, 446, 453, 455, 457, 459, 466, 472, 473, 480, 482, 484, 486, 488, 495, 497, 498, 500, 506, 512, 514, 516, 523 and/or 525 and/or of amino acid sequences derived therefrom will be preferred, in particular when the invention is used to develop compounds for pharmaceutical use.

For further information on the sequences above, reference is made to the listing below.

Thus, in a first aspect, the invention relates to a nucleic acid, preferably in (essentially) isolated form, which nucleic acid encodes and/or can be used to express an amino acid sequence of the invention (as defined herein), and in particular an amino acid sequence of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

In another aspect, the invention relates to a nucleic acid, preferably in (essentially) isolated form, which nucleic acid comprises a nucleotide sequence of the invention, and in particular the nucleotide sequence of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112,

114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526.

In a yet another aspect, the invention relates to a nucleic acid, preferably in (essentially) isolated form, which nucleic acid essentially consists of a nucleotide sequence of the invention, and in particular a nucleotide sequence SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526.

Collectively, these nucleic acids will also be referred to herein as "*nucleic acids of the invention*". Also, where appropriate in the context of the further description of the invention below, the terms "*nucleotide sequence of the invention*" and "*nucleic acid of the invention*" may be considered essentially equivalent and essentially interchangeable.

Also, for the purposes of the present invention, a nucleic acid or amino acid sequence is considered to "*(in) essentially isolated (form)*" – for example, from its native biological source - when it has been separated from at least one other component (and in particular macromolecule) with which it is usually associated, such as another nucleic acid, another protein/polypeptide or another (polymeric) biological component. In particular, a nucleic acid or amino acid sequence is considered "essentially isolated" when it has been purified at least 2-fold, in particular at least 10-fold, more in particular at least 100-fold, and up to 1000-fold or more.

The nucleic acids of the invention may also be in the form of a genetic construct, again as further described below. These constructs will also be referred to herein as "*genetic constructs of the invention*". In a preferred embodiment, such a construct will comprise:

a) the nucleotide sequence of the invention; operably connected to:

b) one or more regulatory elements, such as a promoter and optionally a suitable terminator; and optionally also:

c) one or more further elements of genetic constructs known per se;

in which the terms "*regulatory element*", "*promoter*", "*terminator*", "*further elements*" and "*operably connected*" have the meanings indicated hereinbelow.

In another aspect, the invention relates to a protein or polypeptide, preferably in (essentially) isolated form, said protein or polypeptide comprising an amino acid sequence of the invention (as defined above), and in particular the amino acid sequence of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

In a further aspect, the invention relates to a protein or polypeptide, preferably in (essentially) isolated form, said protein or polypeptide essentially consisting of an amino acid sequence of the invention (as defined above), and in particular of the amino acid sequence of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317,

319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

In a further aspect, the invention relates to methods for transforming a host cell and/or a host organism with a nucleotide sequence, with a nucleic acid and/or with a genetic construct of the invention. The invention also relates to the use of a nucleotide sequence, of a nucleic acid and/or of a genetic construct of the invention transforming a host cell or a host organism.

In yet another aspect, the invention relates to a host cell or host organism that has been transformed and/or contains with a nucleotide sequence, with a nucleic acid and/or with a genetic construct of the invention. The invention also relates to a host cell and/or host organism that expresses, or (at least) is capable of expressing (e.g. under suitable conditions), an amino acid sequence of the invention. Collectively, such host cells/host organisms will also be referred to herein as "*host cells/host organisms of the invention*".

In yet another aspect, the invention relates to a methods for producing an amino acid sequence of the invention, in which a nucleotide sequence, nucleic acid, genetic construct, host cell or host organism of the invention is used. Such methods may for instance include expressing of a nucleotide sequence of the invention in a suitable host cell or host organism (e.g. upon suitable transformation), and/or maintaining and/or cultivating a host cell or host organism of the invention under suitable conditions, i.e. such that an amino acid sequence of the invention is expressed or obtained. Optionally, these methods may also comprise (one or more steps for) isolating the amino acid sequence thus expressed/produced. The invention also relates to the use of a nucleotide sequence, a nucleic acid, a genetic construct and/or a host cell/host organism of the invention in such a method.

In yet a further aspect, the invention relates to a method for identifying a compound that can modulate the (biological) activity of, and/or that can otherwise interact with, an amino acid sequence of the invention, which method is as further described below. The invention also relates to the use of a nucleotide sequence, a nucleic acid, a genetic construct, an amino acid sequence and/or a host cell/host organism of the invention in such a method.

In yet a further aspect, the invention relates to a method for identifying a compound that can be used in (the preparation of a pharmaceutical composition for) the prevention and/or treatment of metabolic diseases (as further defined below), which method is as further described below. The invention also relates to the use of a nucleotide sequence, a nucleic acid, a genetic construct, an amino acid sequence and/or a host cell/host organism of the invention in such a method.

The invention also relates to compounds that can modulate the (biological activity of), and/or that can otherwise interact with, an amino acid sequence of the invention, either *in vitro* or preferably (also) *in vivo*, as further described below. The invention also relates to compositions that contain such compounds, and in particular to pharmaceutical compositions that contains such compounds.

The invention further relates to the use of compounds that can modulate the (biological activity of), and/or that can otherwise interact with, an amino acid sequence of the invention in the preparation of these compositions, and in particular to the use of such compounds in the preparation of a pharmaceutical composition for the prevention and/or treatment of metabolic diseases.

The invention also relates to compounds that can be used in the prevention and/or treatment of metabolic diseases (as further defined below), which compounds have or can be identified and/or developed using the method, nucleic acid sequence, amino acid sequence and/or host cell or host organism of the invention. The invention also relates to compositions that contain such compounds, and in particular to pharmaceutical compositions that contain said compounds.

The invention also relates to the use of such compounds in the preparation of a pharmaceutical composition, and in particular to the use of such compounds in the preparation of a pharmaceutical composition for the prevention or treatment of metabolic diseases.

Unless explicitly specified herein, all terms used in the present description have their usual meaning in the art, for which particular reference is made to the definitions given in WO98/06737 and EP 1 085 089.

The nucleotide sequences of SEQ ID NOs: 2, 9, 18, 27, 38, 50, 51, 63, 73, 83, 94, 101, 107, 116, 126, 135, 144, 159, 166, 173, 181, 188, 195, 202, 210, 219, 228, 236, 245, 252, 259, 275, 292, 299, 308, 320, 329, 336, 347, 355, 364, 371, 384, 392, 401, 408, 415,

424, 433, 442, 449, 462, 468, 476, 491, 502, 508 and 519 were identified, and can be derived/isolated from/using the nematode *C. elegans* in any suitable manner known per se, including but not limited to PCR starting from *C. elegans* genomic DNA or a library of C. *elegans* cDNA, using primers designed on the basis of the relevant sequence.

The nucleotide sequences of SEQ ID NOs: 7, 14, 23, 25, 32, 34, 36, 43, 45, 47, 49, 56, 58, 61, 68, 70, 78, 80, 88, 90, 92, 99, 112, 114, 121, 123, 131, 133, 140, 142, 149, 151, 153, 155, 157, 164, 171, 179, 186, 193, 200, 207, 215, 224, 226, 233, 241, 243, 250, 257, 264, 266, 268, 270, 273, 280, 284, 286, 290, 297, 306, 313, 315, 318, 325, 327, 334, 341, 343, 345, 360, 362, 369, 376, 378, 380, 382, 397, 399, 406, 413, 420, 429, 431, 438, 440, 447, 454, 456, 458, 460, 474, 481, 483, 485, 487, 489, 496, 499, 513, 515, 517, 524 and 526 were identified, and can be derived/isolated from/using human cells; in any suitable manner known per se including but not limited to PCR starting from human genomic DNA or a library of human cDNA, using primers designed on the basis of the relevant sequence.

Also, it is expected that - based upon the disclosure herein - the skilled person will be able to identify, derive and/or isolate natural "mutants" (as mentioned above) of the above nucleotide sequences. For example, such mutants could be derived from (other individuals of) the same species (for example from an individual of a different strain or line, including but not limited to mutant strains or lines); and/or from (individuals of) other species (in which case these mutants will also be referred to herein as "*orthologs*"). Some examples of species from which such orthologs could be derived include, but are not limited to species of

- unicellular and/or micro-organisms such as bacteria, and yeast,
- invertebrate multicellular organisms as such as insects and nematodes (for example, agronomically harmful insect or nematode species);
- vertebrate multicellular organisms as such as fish, birds, reptiles, amphibians and mammals;

Preferably, a natural ortholog is derived from a mammal such as a mouse, rat, rabbit or dog.

Such natural mutants may be obtained in a manner essentially analogous to the methods described in the prior art referred to above, or alternatively by:

- construction of a DNA library from the species of interest in an appropriate expression vector system, followed by direct expression of the mutant sequence;

- construction of a DNA library from the species of interest in an appropriate expression vector system, followed by screening of said library with a probe of the invention (as described below) and/or with a(nother) nucleotide sequence of the invention;
- isolation of mRNA that encodes the mutant sequence from the species of interest, followed by cDNA synthesis using reverse transcriptase;

and/or by any other suitable method(s) or technique(s) known per se, for which reference is for instance made to the standard handbooks, such as Sambrook et al, "Molecular Cloning: A Laboratory Manual" (2nd. ed.), Vols. 1-3, Cold Spring Harbor Laboratory Press (1989) and F. Ausubel et al, eds., "Current protocols in molecular biology", Green Publishing and Wiley Interscience, New York (1987).

It is also expected that - based upon the disclosure herein - the skilled person will be able to provide and/or derive synthetic mutants (as defined hereinabove) of the above nucleotide sequences.

Techniques for generating such synthetic sequences will be clear to the skilled person and may for instance include, but are not limited to, automated DNA synthesis; site-directed mutagenesis; combining two or more parts of one or more naturally occurring sequences, introduction of mutations that lead to the expression of a truncated expression product; introduction of one or more restriction sites (e.g. to create cassettes and/or regions that may easily be digested and/or ligated using suitable restriction enzymes), and/or the introduction of mutations by means of a PCR reaction using one or more "mismatched" primers, using for example a sequence of a naturally occurring GPCR as a template. These and other techniques will be clear to the skilled person, and reference is again made to the standard handbooks, such as Sambrook et al. and Ausubel et al., mentioned above.

Preferably, any mutants as described herein will encode amino acid sequences having one or more, and preferably all, of the structural characteristics/conserved features referred to above for the sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359,

361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

It is also possible in the invention to use a part or fragment of the nucleotide sequences of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526; or a part or fragment of a (natural or synthetic) mutant thereof. These may for instance be 5' and/or 3' truncated nucleotide sequences, or sequences with an introduced *in frame* start codon or stop codon. Also, two or more such parts or fragments of one or more nucleotide sequences of the invention may be suitably combined (e.g. ligated in frame) to provide a (further) nucleotide sequence of the invention.

Preferably, any such parts or fragments will be such that they comprise at least one continuous stretch of at least 15 nucleotides, preferably at least 30 nucleotides, more preferably at least 60 nucleotides, even more preferably more than 90 nucleotides, of one or more of the nucleotide sequences of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526.

In particular, any mutants, parts or fragments as described herein may be such that they (at least) encode the active/catalytic site of the corresponding amino acid sequence of the invention and/or a binding domain of the corresponding amino acid sequence of the invention

Any mutants, parts and/or fragments as described herein are preferably (also) such that they are capable of hybridizing with one or more of the nucleotide sequences of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526, i.e. under conditions of "moderate stringency", and preferably under conditions of "high stringency". Such conditions will be clear to the skilled person, for example from the standard handbooks, such as Sambrook et al. and Ausubel et al., mentioned above, as well as in EP 0 967 284, EP 1 085 089 or WO 00/55318.

In particular, any mutants, parts and/or fragments as described herein may be such that they are capable of hybridizing with the nucleotide sequence of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526 under the "stringent" hybridization conditions described in WO 00/78972 and WO 98/49185, and/or under the hybridization conditions described in GB 2 357 768-A.

Also, any mutants, parts and/or fragments as described herein will preferably have a degree of "sequence identity", at the nucleotide level, with one or more of the nucleotide sequences of SEQ ID NOS: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526 of at least 50%, preferably at least 60%, more preferably at least 70%, even more preferably at least 80%, and in particular more than 90%, and up to 95% or more.

For this purpose, the percentage of "sequence identity" between a given nucleotide sequence and one of the nucleotide sequences of the invention may be calculated by dividing [*the number of nucleotides in the given nucleotide sequence that are identical to the nucleotide at the corresponding position in the nucleotide sequence of the relevant SEQ ID NO*] by [*the total number of nucleotides in the given nucleotide sequence*] and multiplying by [*100%*], in which each deletion, insertion, substitution or addition of a nucleotide - compared to the sequence of the relevant SEQ ID NO - is considered as a difference at a single nucleotide (position).

Alternatively, the degree of sequence identity may be calculated using a known computer algorithm for sequence alignment such as NCBI Blast v2.0, using standard settings.

Some other techniques, computer algorithms and settings for determining the degree of sequence identity are for example described in EP 0 967 284, EP 1 085 089, WO 00/55318, WO 00/78972, WO 98/49185 and GB 2 357 768-A.

Also, in a preferred aspect, any mutants, parts and/or fragments as described herein will encode proteins/polypeptides having a biological activity that is essentially similar to the biological activity described above for the sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199,

201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, i.c. to a degree of at least 10%, preferably at least 50 % more preferably at least 75%, and up to 90%, as measured by a suitable assay method, for example those mentioned in the prior art citcd hereinbelow for each of these sequences.

Preferably, any mutants, parts and/or fragments of the nucleotide sequence of the invention will (also) be such that they encode an amino acid sequence which has a degree of "sequence identity", at the amino acid level, with one or more of the amino acid sequence of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, of at least 50%, preferably at least 60%, more preferably at least 70%, even more preferably at least 80%, and in particular more than 90% and up to 95 % or more, in which the percentage of "sequence identity" is calculated as described below.

Preferably, a nucleotide sequence of the invention will (also) have a length (expressed as total number of nucleotides), which is at least 50%, preferably at least 60%, more preferably at least 70%, even more preferably at least 80%, and in particular more than 90% and up to 95 % or more of the length of one or more of the nucleotide sequence of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140,

142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526.

Generally, the nucleotide sequences of the invention, when in the form of a nucleic acid, may be DNA or RNA, and may be single stranded or double stranded. For example, the nucleotide sequences of the invention may be genomic DNA, cDNA or synthetic DNA (such as DNA with a codon usage that has been specifically adapted for expression in the intended host cell or host organism). Thus, the nucleotide sequences of the invention may contain intron sequences, and also generally comprises different splice variants.

It is also within the scope of the invention to use a fusion of a nucleotide sequence of the invention (as described above) with one or more further nucleotide sequence(s), including but not limited to one or more coding sequences, non-coding sequences and/or regulatory sequences. Preferably, in such fusions, the one or more further nucleotide sequences are operably connected (as described below) to the nucleotide sequence of the invention (for example so that, when the further nucleotide sequence is a coding sequence, the nucleotide fusion encodes a protein fusion as described below).

Another embodiment of the invention relates to a nucleic acid probe that is capable of hybridizing with a nucleotide sequence of the invention under conditions of moderate stringency, preferably under conditions of high stringency, and in particular under stringent conditions (all as described above). Such nucleotide probes may for instance be used for detecting and/or isolating a(nother) nucleotide sequence of the invention and/or as a primer for amplifying a nucleotide sequence of the invention; all using techniques known per se, for which reference is again made to the general handbooks such as Sambrook et al. and Ausubel et al. mentioned above.

Generally, such probes can be designed by the skilled person starting from a nucleotide sequence and/or amino acid sequence of the invention - and in particular one or more of the sequences of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116,

121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526 - optionally using a suitable computer algorithm. Also, as will be clear to the skilled person, such probes may be degenerate probes.

In another embodiment, the invention relates to an antisense molecule against a nucleotide sequence of the invention.

Yet another embodiment relates to a double stranded RNA molecule directed against a nucleotide sequence of the invention (one strand of which will usually comprise at least part of a nucleotide sequence of the invention). The invention also relates to genetic constructs that can be used to provide such double stranded RNA molecules (e.g. by suitable expression in a host cell or host organism, or for example in a bacterial strain such as *E. coli*). For such constructs, reference is made to for example the International Applications PCT/IB01/1068 and WO 00/01846, both by applicant.

The amino acid sequences of SEQ ID NOs: 1, 8, 17, 26, 37, 50, 62, 72, 82, 93, 100, 106, 115, 125, 134, 143, 158, 165, 172, 180, 187, 194, 201, 209, 218, 227, 235, 244, 251, 258, 274, 291, 298, 307, 319, 328, 335, 346, 354, 363, 370, 383, 391, 400, 407, 414, 423, 432, 441, 448, 461, 467, 475, 490, 501, 507 and/or 518 were identified, and can be derived/isolated from/using the nematode *C. elegans*; in the manner as further described in Berman et al., or in any other suitable manner known per se.

The amino acid sequences of SEQ ID NOs: 6, 13, 15, 16, 22, 24, 31, 33, 35, 42, 44, 46, 48, 55, 57, 59, 60, 67, 69, 71, 77, 79, 81, 87, 89, 91, 98, 105, 111, 113, 120, 122, 124, 130, 132, 139, 141, 148, 150, 152, 154, 156, 163, 170, 177, 178, 185, 192, 199, 206, 208, 214, 216, 223, 225, 232, 234, 240, 242, 249, 256, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 296, 303, 304, 305, 312, 314, 316, 317, 324, 326, 333, 340, 342, 344, 351, 352, 353, 359, 361, 368, 375, 377, 379, 381, 388, 389, 390, 396, 398, 405, 412, 419, 422, 428, 430, 437, 439, 446, 453, 455, 457, 459, 466, 472, 473, 480, 482, 484, 486, 488, 495, 497, 498, 500, 506, 512, 514, 516, 523 and 525 were identified, and can be

derived/isolated from/using human cells; in the manner as further described in the prior art referred to above, or in any other suitable manner known per se.

Generally, the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525 may be isolated from the species mentioned above (i.e. *C. elegans* and human, respectively), using any technique(s) for protein isolation and/or purification known per se. Alternatively, the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525 may be obtained by suitable expression of a suitable nucleotide sequence - such as one of the nucleotide sequences of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292, 297, 299, 306, 308, 313, 315, 318, 320, 325, 327,

329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526, as applicable or a suitable mutant thereof - in an appropriate host cell or host organism, as further described below.

Also, it is expected that - based upon the disclosure herein - the skilled person will be able to identify, derive and/or isolate natural "analogs" (as mentioned above) of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525. Such mutants could be derived from (other individuals of) the same species (for example from an individual of a different strain or line, including but not limited to mutant strains or lines); and/or from (individuals of) other species. For example, such analogs could be derived from the insect species or other pest species mentioned above.

Such natural analogs may again be obtained by isolating them from their natural source using any technique(s) for protein isolation and/or purification known per se, or alternatively by suitable expression of a suitable nucleotide sequence of the invention - such as a natural mutant as described above - in an appropriate host cell or host organism, as further described below.

It is also expected that - based upon the disclosure herein - the skilled person will be able to provide and/or derive synthetic "analogs" (as mentioned above) of one or more of the amino sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158,

163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

Generally, such synthetic analogs may be obtained by suitable expression of a suitable nucleotide sequence of the invention - such as a synthetic mutant as described above - in an appropriate host cell or host organism, as further described below.

Preferably, any analogs as described herein will have one or more, and preferably all, of the structural characteristics/conserved features referred to above for the sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

It is also possible in the invention to use a part or fragment of one or more of the amino acid sequences of SEQ ID NOS 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359,

361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, or a part or fragment of a (natural or synthetic) analog thereof mutant thereof. This may for instance be N- and/or C- truncated amino acid sequence. Also, two or more parts or fragments of one or more amino acid sequences of the invention may be suitably combined to provide a (further) amino acid sequence of the invention.

Preferably, any such parts or fragments will be such that they comprise at least one continuous stretch of at least 5 amino acids, preferably at least 10 amino acids, more preferably at least 20 amino acids, even more preferably more than 30 amino acids, of one or more of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

In particular, any parts or fragments as described herein are such that they (at least) comprise the active/catalytic site of the corresponding amino acid sequence of the invention and/or a binding domain of the corresponding amino acid sequence of the invention. As will be clear to the skilled person, such parts or fragments may find particular use in assay- and screening techniques (as generally described below) and/or (when said part or fragment is provided in crystalline form) in X-ray crystallography.

Generally, such parts or fragments of the amino acid sequences of the invention may be obtained by suitable expression of a suitable nucleotide sequence of the invention - such as a suitable part or fragment as described hereinabove for the nucleotide sequences of the invention - in an appropriate host cell or host organism, as further described below.

In addition and/or as an alternative to the methodology above, amino acid sequences of the invention may also be provided by (chemically and/or enzymatically) modifying the side chain(s) of one or more amino acid residues of an amino acid sequence of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525 or a part, fragment, (natural and/or synthetic) mutant, variant, allele, analogs, orthologs thereof, for example by one or more of the side chain modifications as described in WO 01/02560 and/or by incorporating (e.g. by insertion and/or substitution) one or more unnatural amino acid residues, again as described in WO 01/02560.

Preferably, any analogs, parts and/or fragments as described herein will be such that they have a degree of "sequence identity", at the amino acid level, with one or more of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525 of at least 50%, preferably at least 60%, more preferably at least 70%, even more preferably at least 80%, and in particular more than 90% and up to 95 % or more.

For this purpose, the percentage of "sequence identity" between a given amino acid sequence and one of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525 may be calculated by dividing [*the number of amino acid residues in the given amino acid sequence that are identical to the amino acid residue at the corresponding position in the amino acid sequence of the relevant SEQ ID NO]* by [*the total number of amino acid residues in the given amino acid sequence*] and multiplying by [*100%*], in which each deletion, insertion, substitution or addition of an amino acid residue - compared to the sequence of the relevant SEQ ID NO - is considered as a difference at a single amino acid (position).

Alternatively, the degree of sequence identity may be calculated using a known computer algorithm, such as those mentioned above.

Also, such sequence identity at the amino acid level may take into account so-called "conservative amino acid substitutions", which are well known in the art, for example from GB-A-2 357 768, WO 98/49185, WO 00/46383 and WO 01/09300; and (preferred) types and/or combinations of such substitutions may be selected on the basis of the pertinent teachings from the references mentioned in WO 98/49185.

Also, preferably, any analogs, parts and/or fragments as described herein will have a biological activity that is essentially similar to the biological activity described above for the sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269,

271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, i.e. to a degree of at least 10%, preferably at least 50 % more preferably at least 75%, and up to 90%, as measured by a suitable assay method, for example those mentioned in the prior art cited hereinbelow for each of these sequences.

Preferably, an amino acid sequence of the invention will (also) have a length (expressed as total number of amino acid residues), which is at least 50%, preferably at least 60%, more preferably at least 70%, even more preferably at least 80%, and in particular more than 90% and up to 95 % or more of the length of one or more of the amino acid sequence of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

It is also within the scope of the invention to use a fusion of an amino acid sequence of the invention (as described above) with one or more further amino acid sequences, for example to provide a protein fusion. Generally, such fusions may be obtained by suitable expression of a suitable nucleotide sequence of the invention - such as a suitable fusion of a nucleotide sequence of the invention with one or more further coding sequences - in an appropriate host cell or host organism, as further described below.

One particular embodiment, such fusions may comprise an amino acid sequence of the invention fused with a reporter protein such as GFP, luciferase or another fluorescent

protein moiety. As will be clear to the skilled person, such fusions may find particular use in expression analysis and similar methodologies.

In another embodiment, the fusion partner may be an amino acid sequence or residue that may be used in purification of the expressed amino acid sequence, for example using affinity techniques directed against said sequence or residue. Thereafter, said sequence or residue may be removed (e.g. by chemical or enzymatical cleavage) to provide the nucleotide sequence of the invention (for this purpose, the sequence or residue may optionally be linked to the amino acid sequence of the invention via a cleavable linker sequence). Some preferred, but non-limiting examples of such residues are multiple histidine residues and glutatione residues,

In one preferred, but non-limiting aspect, any such fusion will have a biological activity that is essentially similar to the biological activity described above for the sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, i.e. to a degree of at least 10%, preferably at least 50 % more preferably at least 75%, and up to 90%, as measured by a suitable assay method, for example those mentioned in the prior art cited hereinbelow for each of these sequences.

Genetic constructs of the invention will generally comprise at least one nucleotide sequence of the invention, optionally linked to one or more elements of genetic constructs known per se, as described below.

Such genetic constructs may be DNA or RNA, and are preferably double-stranded DNA. The constructs may also be in a form suitable for transformation of the intended host cell or host organism, in a form suitable for integration into the genomic DNA of the intended host cell or in a form suitable independent replication, maintenance and/or inheritance in the

intended host organism. For instance, the genetic construct may be in the form of a vector, such as for example a plasmid, cosmid, YAC, a viral vector or transposon. In particular, the vector may be an expression vector, i.e. a vector that can provide for expression *in vitro* and/or *in vivo* (e.g. in a suitable host cell and/or host organism as described below).

As the one or more "further elements" referred to above, the genetic construct(s) of the invention may generally contain one or more suitable regulatory elements (such as a suitable promoter(s), enhancer(s), terminator(s), etc.), 3'- or 5'-UTR sequences, leader sequences, selection markers, expression markers/reporter genes, and/or elements that may facilitate or increase (the efficiency of) transformation or integration. These and other suitable elements for such genetic constructs will be clear to the skilled person, and may for instance depend upon the type of construct used, the intended host cell or host organism; the manner in which the nucleotide sequences of the invention of interest are to be expressed (e.g. via constitutive, transient or inducible expression); and/or the transformation technique to be used.

Preferably, in the genetic constructs of the invention, the one or more further elements are "*operably linked*" to the nucleotide sequence(s) of the invention and/or to each other, by which is generally meant that they are in a functional relationship with each other. For instance, a promoter is considered "*operably linked*" to a coding sequence if said promoter is able to initiate or otherwise control/regulate the transcription and/or the expression of a coding sequence (in which said coding sequence should be understood as being "*under the control of*" said promoter)

Generally, when two nucleotide sequences are operably linked, they will be in the same orientation and usually also in the same reading frame. They will usually also be essentially contiguous, although this may also not be required.

Preferably, the optional further elements of the genetic construct(s) used in the invention are such that they are capable of providing their intended biological function in the intended host cell or host organism.

For instance, a promoter, enhancer or terminator should be "*operable*" in the intended host cell or host organism, by which is meant that (for example) said promoter should be capable of initiating or otherwise controlling/regulating the transcription and/or the expression of a nucleotide sequence - e.g. a coding sequence - to which it is operably linked (as defined above).

Such a promoter may be a constitutive promoter or an inducible promoter, and may also be such that it (only) provides for expression in a specific stage of development of the host cell or host organism, and/or such that it (only) provides for expression in a specific cell, tissue, organ or part of a multicellular host organism.

Some particularly preferred promoters include, but are not limited to those present in the expression vectors referred to below.

A selection marker should be such that it allows - i.e. under appropriate selection conditions - host cells and/or host organisms that have been (successfully) transformed with the nucleotide sequence of the invention to be distinguished from host cells/organisms that have not been (successfully) transformed. Some preferred, but non-limiting examples of such markers are genes that provide resistance against antibiotics (such as kanamycin or ampicillin), genes that provide for temperature resistance, or genes that allow the host cell or host organism to be maintained in the absence of certain factors, compounds and/or (food) components in the medium that are essential for survival of the non-transformed cells or organisms.

A leader sequence should be such that - in the intended host cell or host organism - it allows for the desired post-translational modifications and/or such that it directs the transcribed mRNA to a desired part or organelle of a cell. A leader sequence may also allow for secretion of the expression product from said cell. As such, the leader sequence may be any pro-, pre-, or prepro-sequence operable in the host cell or host organism.

An expression marker or reporter gene should be such that - in the host cell or host organism - it allows for detection of the expression of (a gene or nucleotide sequence present on) the genetic construct. An expression marker may optionally also allow for the localisation of the expressed product, e.g. in a specific part or organelle of a cell and/or in (a) specific cell(s), tissue(s), organ(s) or part(s) of a multicellular organism. Such reporter genes may also be expressed as a protein fusion with the amino acid sequence of the invention. Some preferred, but non-limiting examples include fluorescent proteins such as GFP.

For some (further) non-limiting examples of the promoters, selection markers, leader sequences, expression markers and further elements that may be present/used in the genetic constructs of the invention - such as terminators, transcriptional and/or translational enhancers and/or integration factors - reference is made to the general handbooks such as Sambrook et al. and Ausubel et al. mentioned above, to W.B. Wood et al., "*The nematode*

Caenorhabditis elegans", Cold Spring Harbor Laboratory Press (1988) and D.L. Riddle et al., "*C. ELEGANS II*", Cold Spring Harbor Laboratory Press (1997), as well as to the examples that are given in WO 95/07463, WO 96/23810, WO 95/07463, WO 95/21191, WO 97/11094, WO 97/42320, WO 98/06737, WO 98/21355, US-A-6,207,410, US-A- 5,693,492 and EP 1 085 089. Other examples will be clear to the skilled person.

The genetic constructs of the invention may generally be provided by suitably linking the nucleotide sequence(s) of the invention to the one or more further elements described above, for example using the techniques described in the general handbooks such as Sambrook et al. and Ausubel et al., mentioned above.

Often, the genetic constructs of the invention will be obtained by inserting a nucleotide sequence of the invention in a suitable (expression) vector known per se. Some preferred, but non-limiting examples of suitable expression vectors include:

- vectors for expression in mammalian cells: pMAMneo (Clontech), pcDNA3 (Invitrogen), pMC1neo (Stratagene), pSG5 (Stratagene), EBO-pSV2-neo (ATCC 37593), pBPV-1 (8-2) (ATCC 37110), pdBPV-MMTneo (342-12) (ATCC 37224), pRSVgpt (ATCC37199), pRSVneo (ATCC37198), pSV2-dhfr (ATCC 37146), pUCTag (ATCC 37460) and 1ZD35 (ATCC 37565);
- vectors for expression in bacterials cells: pET vectors (Novagen) and pQE vectors (Qiagen);
- vectors for expression in yeast or other fungal cells: pYES2 (Invitrogen) and Pichia expression vectors (Invitrogen);
- vectors for expression in insect cells: pBlueBacII (Invitrogen).

The nucleotide sequences and/or genetic constructs of the invention may be used to transform a host cell or host organism.

The host cell may be any suitable (fungal, prokaryotic or eukaryotic) cell or cell line, for example:

- a bacterial strain, including but not limited to strains of *E. coli*, *Bacillus*, *Streptomyces* and *Pseudomonas*;
- a fungal cell, including but not limited to cells from species of *Aspergillus* and *Trichoderma*;
- a yeast cell, including but not limited to cells from species of *Kluyveromyces* or *Saccharomyces;*

- an amphibian cell or cell line, such as *Xenopus* oocytes.

In one specific embodiment, which may particularly useful when the nucleotide sequences of the invention are (to be) used in the discovery and development of insecticidal compounds, the host cell may be an insect-derived cell or cell line, such as:

- cells/cell lines derived from *lepidoptera*, including but not limited to *Spodoptera* Sf9 and Sf21 cells,
- cells/cell lines derived from *Drosophila*, such as Schneider and Kc cells; and/or
- cells/cell lines derived from a pest species of interest (as mentioned below), such as from *Heliothis virescens*.

In one preferred embodiment, the host cell is a mammalian cell or cell line, for example derived from the mammals referred to above.

In an even more preferred aspect, the host cell is a cell or cell line derived from a human, from the mammals including but not limited to CHO- and BHK-cells and human cells or cell lines such as HeLa and COS.

In one specific, but non-limiting embodiment, the cell or cell line may be human cell or cell line which is related to metabolic processes or metabolic disease and/or used as a cellular model for metabolic disease, including but not limited to liver cells or cell lines, adipocytes or muscle cells or cell lines such as HEPG2 cells, 3T3L1 adipocytes, CTC12 cells and L6 myotubes.

The host organism may be any suitable multicellular (vertebrate or invertebrate) organism, including but not limited to:

- a nematode, including but not limited to nematodes from the genus *Caenorhabditis*, such as *C. elegans*,
- an insect, including but not limited to species of *Drosophila* and/or a specific pest species of interest (such as those mentioned above);
- other well known model organisms, such as zebrafish;
- a mammal such as a rat or mouse;

Other suitable host cells or host organisms will be clear to the skilled person, for example from the handbooks and patent applications mentioned above.

It should be noted that when a nucleotide sequence of the invention is expressed in a multicellular organism, it may be expressed throughout the entire organism, or only in one or

more specific cells, tissues, organs and/or parts thereof, for example by expression under the control of a promoter that is specific for said cell(s), tissue(s), organ(s) or part(s).

The nucleotide sequence may also be expressed during only a specific stage of development or life cycle of the host cell or host organism, again for example by expression under the control of a promoter that is specific for said stage of development or life cycle. Also, as already mentioned above, said expression may be constitutive, transient and/or inducible.

According to one specific embodiment, the expression of a nucleotide sequence of the invention in a host cell or host organism may be party or totally reduced (i.e. knocked out), compared to the original (e.g. native) host cell or host organism. This may for instance be achieved in a transient manner using antisense and/or RNA-interference techniques well known in the art, or in a constitutive manner using random, site specific and/or chemical mutagenesis of the nucleotide sequence of the invention, or any other suitable techniques for generating "knock-down" or "knock-out" animals.

Suitable transformation techniques will be clear to the skilled person and may depend on the intended host cell/host organism and the genetic construct to be used. Some preferred, but non-limiting examples of suitable techniques include ballistic transformation, (micro-)injection, transfection (e.g. using suitable transposons), electroporation and lipofection. For these and other suitable techniques, reference is again made to the handbooks and patent applications mentioned above.

After transformation, a step for detecting and selecting those host cells or host organisms that have been succesfully transformed with the nucleotide sequence/genetic construct of the invention may be performed. This may for instance be a selection step based on a selectable marker present in the genetic construct of the invention or a step involving the detection of the amino acid sequence of the invention, e.g. using specific antibodies.

The transformed host cell (which may be in the form or a stable cell line) or host organisms (which may be in the form of a stable mutant line or strain) form further aspects of the present invention.

Preferably, these host cells or host organisms are such that they express, or are (at least) capable of expressing (e.g. under suitable conditions), an amino acid sequence of the invention (and in case of a host organism: in at least one cell, part, tissue or organ thereof). The invention also includes further generations, progeny and/or offspring of the host cell or

host organism of the invention, that may for instance be obtained by cell division or by sexual or asexual reproduction.

To produce/obtain expression of the amino acid sequences of the invention, the transformed host cell or transformed host organism may generally be kept, maintained and/or cultured under conditions such that the (desired) amino acid sequence of the invention is expressed/produced. Suitable conditions will be clear to the skilled person and will usually depend upon the host cell/host organism used, as well as on the regulatory elements that control the expression of the (relevant) nucleotide sequence of the invention. Again, reference is made to the handbooks and patent applications mentioned above in the paragraphs on the genetic constructs of the invention.

Generally, suitable conditions may include the use of a suitable medium, the presence of a suitable source of food and/or suitable nutrients, the use of a suitable temperature, and optionally the presence of a suitable inducing factor or compound (e.g. when the nucleotide sequences of the invention are under the control of an inducible promoter); all of which may be selected by the skilled person. Again, under such conditions, the amino acid sequences of the invention may be expressed in a constitutive manner, in a transient manner, or only when suitably induced.

It will also be clear to the skilled person that the amino acid sequence of the invention may (first) be generated in an immature form (as mentioned above), which may then be subjected to post-translational modification, depending on the host cell/host organism used. Also, the amino acid sequence of the invention may be glycosylated, again depending on the host cell/host organism used.

The amino acid sequence of the invention may then be isolated from the host cell/host organism and/or from the medium in which said host cell or host organism was cultivated, using protein isolation and/or purification techniques known per se, such as (preparative) chromatography and/or electrophoresis techniques, differential precipitation techniques, affinity techniques (e.g. using a specific, cleavable amino acid sequence fused with the amino acid sequence of the invention) and/or preparative immunological techniques (i.e. using antibodies against the amino acid sequence to be isolated).

In one embodiment, the amino acid sequence thus obtained may also be used to generate antibodies specifically against said sequence or an antigenic part or epitope thereof.

Such antibodies, which form a further aspect of the invention, may be generated in a manner known per se, for example as described in GB-A-2 357 768, US-A-5,693,492, WO 95/32734, WO 96/23882, WO 98/02456, WO 98/41633 and/or WO 98/49306, and/or as described in the prior art referred to above. Often, but not exclusively, such methods will involve as immunizing a immunocompetent host with the pertinent amino acid sequence of the invention or an immungenic part thereof (such as a specific epitope), in amount(s) and according to a regimen such that antibodies against said amino acid sequence are raised, and than harvesting the antibodies thus generated, e.g. from blood or serum derived from said host.

For instance, polyclonal antibodies can be obtained by immunizing a suitable host such as a goat, rabbit, sheep, rat, pig or mouse with (an epitope of) an amino acid sequence of the invention, optionally with the use of an immunogenic carrier (such as bovine serum albumin or keyhole limpet hemocyanin) and/or an adjuvant such as Freund's, saponin, ISCOM's, aluminium hydroxide or a similar mineral gel, or keyhole limpet hemocyanin or a similar surface active substance. After a suitable immune response has been raised (usually within 1-7 days), the antibodies can be isolated from blood or serum taken from the immunized animal in a manner known per se, which optionally may involve a step of screening for an antibody with desired properties (i.e. specificity) using known immunoassay techniques, for which reference is again made to for instance WO 96/23882.

Monoclonal antibodies may for example be produced using continuous cell lines in culture, including hybridoma-based and similar techniques, again essentially as described in the above cited references. Accordingly, cells and cell lines that produce monoclonal antibodies against an amino acid sequence of the invention form a further aspect of the invention, as do methods for producing antibodies against amino acid sequences of the invention, which methods may generally involve cultivating such a cell and isolating the antibodies from the culture (medium), again using techniques known per se.

Also, Fab-fragments against the amino acid sequences of the invention (such as $F(ab)_2$, Fab' and Fab fragments) may be obtained by digestion of an antibody with pepsin or another protease, reducing disulfide-linkages and treatment with papain and a reducing agent, respectively. Fab-expression libraries may for instance be obtained by the method of Huse et al., 1989, Science 245:1275-1281.

In another embodiment, the nucleotide sequences of the invention, the amino acid sequences of the invention, and/or a host cell or host organism that expresses such an amino acid sequence, may also be used in an assay or assay method generally (including but not limited to diagnostic assays and/or assays to determing the presense and/or absence of specific mutations and/or genetic markers, for example to determine susceptibility for a condition or disease associated with such a mutation or marker), and in particular in an assay to identify and/or (further) develop compounds and/or other factors that can modulate the (biological) activity of, and/or that can otherwise interact with, the amino acid sequences of the invention, and such uses form further aspects of the invention. As will be clear to the skilled person, in this context, the amino acid sequence of the invention will serve as a target for interaction with such a compound or factor.

In this context, the terms "*modulate*", "*modulation,* "*modulator*" and "*target*" will have their usual meaning in the art, for which reference is *inter alia* made to the definitions given in WO 98/06737. Generally, a modulator is a compound or factor that can enhance, inhibit/reduce or otherwise alter, influence or affect (collectively referred to as "*modulation*") a functional property of a biological activity or process (for example, the biological activity of an amino acid sequence of the invention).

In this context, the amino acid sequence of the invention may serve as a target for modulation *in vitro* (e.g. as part of an assay or screen) and/or for modulation *in vivo* (e.g. for modulation by a compound or factor that is known to modulate the target, which compound or factor may for example be used as an active compound for agrochemical, veterinary and/or pharmaceutical use).

For example, the amino acid sequences, host cells and/or host organisms of the invention may be used as part of an assay or screen that may be used to identify and/or develop modulators of the amino acid sequence of the invention, such as a primary screen (e.g. a screen used to identify modulators of the target from a set or library of test chemicals with unknown activity with respect to the target) and/or a secondary assay (e.g. an assay used for validating hits from a primary screen and/or used in optimizing hit molecules, e.g. as part of hits-to-leads chemistry).

For instance, such an assay or screen may be configured as an *in vitro* assay or screen, which will generally involve binding of the compound or factor to be tested as a potential modulator for the target (hereinbelow also referred to as "test chemical") to the target, upon

which a signal generated by said binding is measured. Suitable techniques for such *in vitro* screening will be clear to the skilled person, and are for example described in Eldefrawi et al., (1987). FASEB J., Vol.1, pages 262-271 and Rauh et al., (1990), Trends in Pharmacol. Sci., vol.11, pages 325-329. For example, such an assay or screen may be configured as a binding assay or screen, in which the test chemical is used to displace a detectable ligand from the target (e.g. a radioactive or fluorescent ligand), upon which the amount of ligand displaced from the target by the modulator is determined. Other suitable assays for the amino acid sequences of the invention will be clear to the skilled person, and may for example be found in the prior art cited herein; such assays may optionally also be adapted to and/or configured for screening in an automated, medium-to-high throughput fashion.

It is also within the scope of the invention to screen for compounds that influence such interactions between the amino acid sequences of the invention and/or between one or more amino acid sequences of the invention and one or more further amino acid sequences with which they interact (and that preferably belong to the same biological pathway).

Suitable techniques for screening protein-protein interactions will be clear to the skilled person. For example, provided both partner proteins are available in a purified soluble form (recombinant), protein-protein interactions may be screened *in vitro*, e.g. using techniques based on the principle of signal change due to the distance between two labels, each present on one of the interacting partners. The following methods are the most commonly used:

- FRET (fluorescence resonance energy transfer) of TRF (time-resolved fluorescence). According to this technique, which is usually the preferred option, one of the interacting proteins is labeled with the fluorescent dye known as donor while the other is labeled with a different dye, spectrally matched, and called acceptor. In the assay, the donor dye absorbs all the light and, in the proximity of the acceptor, transfers this energy to the acceptor. The measured emission (fluorescence) is observed from the acceptor. If there is no interaction between the proteins (presence of the inhibitor), no fluorescence signal should be observed from the acceptor dye. The TRF option combines this principle with specially designed dyes which interact at longer distances (important for protein-protein interactions!) and whose emission can be better separated not only spectrally but also in time.

- SPA (scintillation proximity assay). In this technique, one of the interacting proteins is bound to a bead containing a scintilant while the other protein, carrying a radioactive label, is free in solution. The scintillation signal is measured only upon the binding of the two partners.
- BRET. This technique is essentially identical to FRET, the difference being that the donor is luminescent instead of fluorescent.
- AlphaScreen (Amplified Luminescence Proximity Homogeneous Assay).

A number on non-homogeneous assay, based on the ELISA principle can be also envisaged (for example DELFIA) but these are less automation-friendly. In addtion, it is also possible to use conventional yeast-two-hybrid (Y2H) and yeast-three-hybrid (Y3H) and similar techniques.

Assays or screens for identifying compounds that can interact with the amino acid sequences of the invention may also be configured as a cell-based assay or screen, in which a host cell of the invention is contacted with/exposed to a test chemical, upon which at least one biological response by the host cell is measured.

Suitable cells or cell lines for such cell based assays include those mentioned above. In one preferred, but non-limitig embodiment, the cell or cell line may be a mammalian, and in particular human, cell or cell line which is related to metabolic processes or metabolic disease and/or used as a cellular model for metabolic disease, including but not limited to liver cells or cell lines, adipocytes or muscle cells or cell lines such as HEPG2 cells, 3T3L1 adipocytes, CTC12 cells and L6 myotubes.

Also, such an assay or screen may also be configured as an whole animal screen, in which a host organism of the invention is contacted with/exposed to a test chemical, upon which at least one biological response (such as a phenotypical, behavioural and/or physiological change, including but not limited to paralysis or death) by the host organism is measured. Such screens may be carried out in any model organism known per se, including but not limited to yeast, Drosophila, zebrafish or *C. elegans*.

Thus, generally, the assays and screens described above will comprise at least one step in which the test chemical is contacted with the target (and/or with a host cell or host organism that expresses the target), and in particular in such a way that a signal is generated that is representative for the modulation of the target by the test chemical. In a further step, said signal may then be detected.

Accordingly, in one aspect, the invention relates to a method for generating a signal that is representative for the interaction of an amino acid sequence of the invention with a test chemical, said method at least comprising the steps of:

a) contacting the amino acid sequence of the invention, or a host cell or host organism containing/expressing an amino acid sequence of the invention, with said test chemical, in such a way that a signal may be generated that is representative for the interaction between said test chemical and said amino acid sequence; and optionally

b) detecting the signal that may thus be generated.

In another aspect, the invention relates to a method for identifying modulators of an amino acid sequence of the invention (e.g. from a set or library of test chemicals), said method at least comprising the steps of:

a) contacting the amino acid sequence of the invention, or a host cell or host organism containing/expressing an amino acid sequence of the invention, with a test chemical, in such a way that a signal may be generated that is representative for the interaction between said test chemical and said amino acid sequence; and optionally

b) detecting the signal that may thus be generated, said signal identifying a modulator of said amino acid sequence.

Compounds that may be tested using the methods of the invention are generally described below.

The assays and screens of the invention may be carried out at medium throughput to high throughput, for example in an automated fashion using suitable robotics. In particular, in this embodiment, the method of the invention may be carried out by contacting the target with the test compound in a well of a multi-well plate, such as a standard 24, 96, 384, 1536 or 3456 well plate.

Usually, in a screen or assay of the invention, for each measurement, the target or host cell/host organism will be contacted with only a single test compound. However, it is also within the scope of the invention to contact the target with two or more test compounds - either simultaneously or sequentially - for example to determine whether said combination provides a synergistic effect.

Once a test chemical has been identified as a modulator for an amino acid sequence of the invention (e.g. by means of a screen or assay as described hereinabove), it may be used per se as a modulator of the amino relevant amino acid sequence of the invention (e.g. as an

active substance for pharmaceutical use), or it may optionally be further optimized for final use, e.g. to improve properties such as solubility, ADME-TOX and other desired properties. It will be clear to the skilled person that the nucleotide sequences, amino acid sequences, host cells/host organisms and/or methods of the invention may find further use in such optimization methodology, for example as (part of) secondary assays.

The invention is not particularly limited to any specific manner or mechanism in/via which the modulator (e.g. the test chemical, compound and/or factor) modulates, or interacts with, the target (*in vivo* and/or *in vitro*). For example, the modulator may an agonist, an antagonist, an inverse agonist, a partial agonist, a competitive inhibitor, a non-competitive inhibitor, a cofactor, an allosteric inhibitor or other allosteric factor for the target, and/or may be a compound or factor that enhances or reduces binding of target to another biological component associated with its (biological) activity, such as another protein or polypeptide, a receptor, or a part of organelle of a cell. As such, the modulator may bind with the target (at the active site, at an allosteric site, at a binding domain and/or at another site on the target, e.g. covalently or via hydrogen bonding), block the active site of the target (in a reversible, irreversible or competitive manner), block a binding domain of the target (in a reversible, irreversible or competitive manner), and/or influence or change the conformation of the target.

As such, the test chemical/modulator may for instance be:

- an analog of a known substrate of the target;
- an oligopeptide, e.g. comprising between 2 and 20, preferably between 3 and 15 amino acid residues;
- an antisense or double stranded RNA molecule;
- a protein, polypeptide;
- a cofactor or an analog of a cofactor.

Preferably, the compound is an inhibitor of the target, although the invention in its broadest sense is not limited thereto.

The test chemical/modulator may also be a reference compound or factor, which may be a compound that is known to modulate or otherwise interact with the target (e.g. a known substrate or inhibitor for the target) or a compound or factor that is generally known compound that is known to modulate or otherwise interact with other members from the general class to which the target belongs (e.g. a known substrate or inhibitor of said class).

Preferably, however, the compound(s) will be "small molecules", by which is generally meant herein a molecular entity with a molecular weight of less than 1500, preferably less than 1000. This may for example be an organic, inorganic or organometallic molecule, which may also be in the form or a suitable salt, such as a water-soluble salt; and may also be a complex, chelate and/or a similar molecular entities, as long as its (overall) molecular weight is within the range indicated above.

In a preferred embodiment, such a "small molecule" has been designed according, and/or meets the criteria of, at least one, preferably at least any two, more preferably at least any three, and up to all of the so-called Lipinski rules for drug likeness prediction (vide Lipinski et al., Advanced Drug Delivery Reviews 23 (1997), pages 3-25). As is known in the art, small molecules which meet these criteria are particularly suited (as starting points) for the design and/or development of pharmaceuticals for human use, and may for instance be used as starting points for hits-to-leads chemistry, and/or as starting points for lead development (in which the methods of the invention may also be applied).

Also, for these purposes, the design of such small molecules (as well as the design of libraries consisting of such small molecules) will preferably also take into account the presence of pharmacophore points, for example according to the methods described by I. Muegge et al., J. Med. Chem. 44, 12 (2001), pages 1-6 and the documents cited herein.

The term "small peptide" generally covers (oligo)peptides that contain a total of between 2 and 35, such as for example between 3 and 25, amino acids (e.g. in one or more connected chains, and preferably a single chain). It will be clear that some of these small peptides will also be included in the term small molecule as used herein, depending on their molecular weight.

In one preferred, but non-limiting embodiment, the invention is used to screen a set or library of (related or otherwise unrelated) small molecules, for example a standard "robustness set", a primary screening library (e.g. of otherwise unrelated compounds), a combinatorial library, a series of closely related chemical analogos. Such sets or libraries will be clear to the skilled person, and may for instance include, but are not limited to, such commercially available chemical libraries such as the various libraries available from Tocris Cookson, Bristol, UK.

In yet a further aspect, the invention relates to a method for identifying a compound that can be used in (the preparation of a pharmaceutical composition for) the prevention

and/or treatment of metabolic diseases (e.g. from a set or library of test chemicals), said method at least comprising the steps of:

a) contacting an amino acid sequence of the invention, and/or a host cell or host organism containing/expressing an amino acid sequence of the invention, with a test chemical, in such a way that a signal may be generated that is representative for the interaction between said test chemical and said amino acid sequence of the invention; and optionally

b) detecting the signal that may thus be generated, said signal identifying a modulator of said amino acid sequence.

The modulators thus identified can be used in (the preparation of a pharmaceutical composition for) the prevention and/or treatment of metabolic diseases, and/or can be used to develop other compounds that can be used in (the preparation of a pharmaceutical composition for) the prevention and/or treatment of metabolic diseases, i.e. as already outlined above.

The invention also relates to the use of an amino acid sequence and/or a host cell/host organism of the invention in such a method.

Also, as already mentioned above, the use of the human nucleotide sequences of SEQ ID NOs: 7, 14, 23, 25, 32, 34, 36, 43, 45, 47, 49, 56, 58, 61, 68, 70, 78, 80, 88, 90, 92, 99, 112, 114, 121, 123, 131, 133, 140, 142, 149, 151, 153, 155, 157, 164, 171, 179, 186, 193, 200, 207, 215, 224, 226, 233, 241, 243, 250, 257, 264, 266, 268, 270, 273, 280, 284, 286, 290, 297, 306, 313, 315, 318, 325, 327, 334, 341, 343, 345, 360, 362, 369, 376, 378, 380, 382, 397, 399, 406, 413, 420, 429, 431, 438, 440, 447, 454, 456, 458, 460, 474, 481, 483, 485, 487, 489, 496, 499, 513, 515, 517, 524 and/or 526 and/or of sequences derived therefrom (such as mutants, parts, fragments and/or fusions thereof as described hereinabove), of the human amino acid sequences of SEQ ID NOs: 6, 13, 15, 16, 22, 24, 31, 33, 35, 42, 44, 46, 48, 55, 57, 59, 60, 67, 69, 71, 77, 79, 81, 87, 89, 91, 98, 105, 111, 113, 120, 122, 124, 130, 132, 139, 141, 148, 150, 152, 154, 156, 163, 170, 177, 178, 185, 192, 199, 206, 208, 214, 216, 223, 225, 232, 234, 240, 242, 249, 256, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 296, 303, 304, 305, 312, 314, 316, 317, 324, 326, 333, 340, 342, 344, 351, 352, 353, 359, 361, 368, 375, 377, 379, 381, 388, 389, 390, 396, 398, 405, 412, 419, 422, 428, 430, 437, 439, 446, 453, 455, 457, 459, 466, 472, 473, 480, 482, 484, 486, 488, 495, 497, 498, 500, 506, 512, 514, 516, 523 and/or 525 and/or of sequences derived therefrom (such as analogs, parts, fragments, and/or fusions thereof as

described hereinabove), and of host cells/host organisms containing/expressing these, are usually preferred, in particular when the invention is used to develop compounds for pharmaceutical use.

As already mentioned above, the compounds and/or factors that have been identified and/or developed as modulators of the amino acid sequences of the invention (and/or precursors for such compounds) may be useful as active substances in the pharmaceutical field, for example in the preparation of pharmaceutical compositions, and both such modulators as well as (pharmaceutical) compositions containing them further aspects of the invention.

In particular, the compounds and composition of the invention may be used in (the preparation of pharmaceutical compositions for) the prevention (e.g. prophylaxis) and/or treatment of metabolic diseases (which for the purposes herein in its broadest sense also includes preventing, treating and/or alleviating the symptoms and/or complications of such metabolic diseases).

In particular, such compounds and composition may be used in (the preparation of pharmaceutical compositions for) the prevention (e.g. prophylaxis) and/or treatment of metabolic diseases (which for the purposes herein in its broadest sense also includes preventing, treating and/or alleviating the symptoms and/or complications of such metabolic diseases).

In particular, the compounds and compositions of the invention may be used for preventing and/or treating:

- hyperglycemic conditions and/or other conditions and/or diseases that are (primarily) associated with (the response or sensitivity to) insulin, including but not limited to all forms of diabetes and disorders resulting from insulin resistance, such as Type I and Type II diabetes, as well as severe insulin resistance, hyperinsulinemia, and hyperlipidemia, e.g., obese subjects, and insulin-resistant diabetes, such as Mendenhall's Syndrome, Werner Syndrome, leprechaunism, lipoatrophic diabetes, and other lipoatrophies;
- conditions caused or usually associated with hyperglycemic conditions and/or obesity, such as hypertension, osteoporosis and/or lipodystrophy.

- so-called "metabolic syndrome" (also known as "Syndrome X") which is a condition where several of the following conditions coexist: hypertension; insulin resistance; diabetes; dyslipidemia; and/or obesity.

In particular, the compounds and compositions of the invention may be used for preventing and/or treating diabetes, especially Type I and Type II diabetes. "Diabetes" itself refers to a progressive disease of carbohydrate metabolism involving inadequate production or utilization of insulin and is characterized by hyperglycemia and glycosuria.

Also, as mentioned above, the amino acid sequences of the invention and in particular the nucleotide sequences of the invention, and more in particular the human amino acid sequences and nucleotide sequences of the invention may be used for diagnostic purposes, for example as part of diagnostic assays and/or as part of kits for performing such assays (in which such a kit will comprise at least a nucleotide sequence of the invention, may be suitably packaged (e.g. in a suitbale container) and may optionally further comprise one or more elements for such kits known per se, such as suitable reagents, buffers or other solvents, and instructions for use).

In particular, the amino acid sequences and nucleotide sequences of the invention, as well as assays and kits using such sequences, may be used for diagnostic purposes relating to one or more of the metabolic diseases indicated above, for example as assays to determine the presense and/or absence in an individual of specific mutations and/or genetic markers that relate to one or more of the metabolic diseases referred to above, to determine the susceptibility and/or any predisposition for any of the metabolic diseases referred to above in an individual, to determine if any genetically determined factors contribute or even cause (in full or in part) a metabolic disease in an individual, determine and/or to confirm the kind of metabolic disease from which an individual suffers, and/or to predict the further progress of a metabolic disease in an individual. It will also be clear that any results obtained using such a diagnostic method or assay may also provide guidance to the clinician as to how a metabolic diseaase should be treated in an individual, e.g. which diet should be followed and/or which medication should be prescribed and/or the dosis regimen to be used.

It should also be noted that, for the treatment of the metabolic disease in humans, the compound used will usually and preferably be an inhibitor of an amino acid sequence of the invention, although the invention is its broadest sense is not limited thereto.

In one specific, but non-limiting, embodiment of the invention, a compound is considered an inhibitor of one of the amino acid sequences of the invention if, in a relevant assay such as the kinase activity assays referred to above (or a suitable modification thereof, for example using partially or fully purified protein), said compound reduces the activity of said amino acid sequence, i.e. by at least 1%, preferably at least 10%, such as by 20% or more, compared to the activity without the presence of said compound.

In an even more specific, but non-limiting, embodiment of the invention, a compound is considered an inhibitor of one of the amino acid sequences of the invention if, in a relevant assay, such as a binding assay, said compound has an IC50 value of less than 1000 μm, preferably at than 500 μm, more preferably less than 250μM, even more preferably less than 100 μm, for example 50 μm or less, such as about 10 μm or less.

Again, preferably, in the invention compounds are used that are modulators, and in particular inhibitors, of the human amino acid sequences of SEQ ID NOs: 6, 13, 15, 16, 22, 24, 31, 33, 35, 42, 44, 46, 48, 55, 57, 59, 60, 67, 69, 71, 77, 79, 81, 87, 89, 91, 98, 105, 111, 113, 120, 122, 124, 130, 132, 139, 141, 148, 150, 152, 154, 156, 163, 170, 177, 178, 185, 192, 199, 206, 208, 214, 216, 223, 225, 232, 234, 240, 242, 249, 256, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 296, 303, 304, 305, 312, 314, 316, 317, 324, 326, 333, 340, 342, 344, 351, 352, 353, 359, 361, 368, 375, 377, 379, 381, 388, 389, 390, 396, 398, 405, 412, 419, 422, 428, 430, 437, 439, 446, 453, 455, 457, 459, 466, 472, 473, 480, 482, 484, 486, 488, 495, 497, 498, 500, 506, 512, 514, 516, 523 and/or 525, and/or of amino acid sequences derived therefrom, such as analogs, mutants, parts, fragments and/or fusions as described above.

For pharmaceutical use, the compounds of the invention may be used as a free acid or base, and/or in the form of a pharmaceutically acceptable acid-addition and/or base-addition salt (e.g. obtained with non-toxic organic or inorganic acid or base), in the form of a hydrate, solvate and/or complex, and/or in the form or a pre-drug, such as an ester. Such salts, hydrates, solvates, etc. and the preparation thereof will be clear to the skilled person; reference is for instance made to the salts, hydrates, solvates, etc. described in US-B1-6,372,778, US-B1-6,369,086 and US-B1-6,369,067.

Generally, for pharmaceutical use, the compounds of the inventions may be formulated as a pharmaceutical preparation comprising at least one compound of the invention and at least one pharmaceutically acceptable carrier, diluent or excipient and/or

adjuvant, and optionally one or more further pharmaceutically active compounds. By means of non-limiting examples, such a formulation may be in a form suitable for oral administration, for parenteral administration (such as by intravenous, intramuscular or subcutaneous injection or intravenous infusion), for topical administration, for administration by inhalation, by a skin patch, by an implant, by a suppository, etc.. Such suitable administration forms - which may be solid, semi-solid or liquid, depending on the manner of administration - as well as methods and carriers for use in the preparation thereof, will be clear to the skilled person; reference is again made to for instance US-B1-6,372,778, US-B1-6,369,086 and US-B1-6,369,067.

The pharmaceutical preparations of the invention are preferably in a unit dosage form, and may be suitably packaged, for example in a box, blister, vial, bottle, sachet, ampoule or in any other suitable holder or container (which may be properly labeled); optionally with one or more leaflets containing product information and/or instructions for use. Generally, such unit dosages will contain between 1 and 500 mg of the at least one compound of the invention, e.g. about 10, 25, 50, 100, 200, 500 or 1000 mg per unit dosage.

For pharmaceutical use, at least one compound of the invention will generally be administered in an amount of between 0.01 to 150 mg/kg body weight per day of the patient, divided over one or more daily doses. The amount(s) to be administered and the further treatment regimen may be determined by the treating clinician, depending on factors such as the age, gender and general condition of the patient and the nature and severity of the disease/symptoms to be treated.

Thus, in a further aspect, the invention relates to a composition, and in particular a composition for pharmaceutical use, that contains at least one compound of the invention (i.e. a compound that has been identified, discovered and/or developed using a nematode or method as described herein) and at least one suitable carrier (i.e. a carrier suitable for pharmaceutical use). The invention also relates to the use of a compound of the invention in the preparation of such a composition.

Preferably, the compounds and compositions of the invention are administered orally and/or in a form intended and/or suitable for oral administration.

It is also envisaged that the above compounds and compositions may be of value in the veterinary field, which for the purposes herein not only includes the prevention and/or treatment of diseases in animals, but also - for economically important animals such as cattle,

pigs, sheep, chicken, fish, etc. - enhancing the growth and/or weight of the animal and/or the amount and/or the quality of the meat or other products obtained from the animal. Thus, in a further aspect, the invention relates to a composition for veterinary use that contains at least one compound of the invention (i.e. a compound that has been identified, discovered and/or developed using a nematode or method as described herein) and at least one suitable carrier (i.e. a carrier suitable for veterinary use). The invention also relates to the use of a compound of the invention in the preparation of such a composition.

In the agrochemical field, the invention may be used to identify compounds suitable for use in pesticides, insecticides, nematicides and/or other biocides or plant protection agents. For example, the compounds invention may be used to control the species listed in US-B1-6,372,774. For this purpose, the compounds of the invention (or a suitable salt, hydrate or ester thereof) may be suitably formulated with one or more agrochemically acceptable carriers, to provide a formulation suitable for agrochemical use, as will be clear to the skilled person (reference is for example made to the formulations and uses described in US-B1-6,372,774).

Thus, in a further aspect, the invention relates to a composition for agrochemical use that contains at least one compound of the invention (i.e. a compound that has been identified, discovered and/or developed using a nematode or method as described herein) and at least one suitable carrier (i.e. a carrier suitable for agrochemical use). The invention also relates to the use of a compound of the invention in the preparation of such a composition.

The invention will now be further illustrated by means of the following non-limiting Experimental Part.

In the Figures:

- Figure 1 schematically shows vector pGN49A (see also also WO 00/01846 and British patent application 0012233, both by Applicant);
- Figures 2A and 2B are digitized photographs (enhanced using the Scion Image (Scion Corp) software package) showing reduced fat-absorption phenotype in *C. elegans* upon Nile Red Staining: Figure 2A = reduced fat storage (T17E9.1a- invention); Figure 2B = reference (vector gGN29 without T17E9.1a).

Experimental part:

In the Experimental Part below, unless indicated otherwise, all steps for handling and cultivating *C. elegans* were performed using standard techniques and procedures, for which reference is made to the standard *C. elegans* handbooks, such as W.B. Wood et al., "*The nematode Caenorhabditis elegans*", Cold Spring Harbor Laboratory Press (1988); D.L. Riddle et al., "*C. ELEGANS II*", Cold Spring Harbor Laboratory Press (1997); "*Caenorhabditis elegans, Modern Biological analysis of an organism*": ed. by H. Epstein and D. Shakes, Methods in Cell Biology, Vol 48, 1995; and "*C. elegans, a practical approach*", ed. by I.A. Hope, Oxford University Press Inc. New York, USA, 1999.

Downregulation of the gene(s) of interest in *C. elegans* was achieved by RNAi feeding techniques using an *E.coli* strain capable of expressing a dsRNA corresponding to the gene(s) of interest, as generally described in - *inter alia* - the International application WO 00/01846 by applicant and the handbooks referred to above.

Also, unless indicated otherwise, all cloning and other molecular biology steps were performed using standard techniques and protocols, i.e. as provided by the manufacturers of the reagents/kits used and/or as described in the standard handbooks, such as Sambrook et al, "Molecular Cloning: A Laboratory Manual" (2nd.ed.), Vols. 1-3, Cold Spring Harbor Laboratory Press (1989) and F. Ausubel et al, eds., "Current protocols in molecular biology", Green Publishing and Wiley Interscience, New York (1987).

Fat accumulation in *C. elegans daf-2 (e1370)* was determined visually under a microscope upon staining with Nile-red, using an adaptation of the general methodology described by Ogg et al., Nature, Vol. 389, 994 (1997). For the general methodology, reference is also made to Thaden et al., 1999 International Worm Meeting abstract 837; Ashrafi and Ruvkun, 2000 East Coast Worm Meeting abstract 67; Ashrafi, Chang and Ruvkun, 2001 International Worm Meeting abstract 325; and Rottiers and Antebi, 2001 International Worm Meeting abstract 620 (all abstracts available from Worm Literature Index at http://elegans.swmed.edu/wli/).

Example 1: Preparation *E. coli* RNA feeding strain for expression of B0348.6a double stranded RNA.

A vector for expression of dsRNA for downregulation of *C. elegans* gene B0348.6a was prepared as follows.

The DNA fragment of SEQ ID NO:5, which corresponds to 821 nucleotides of the *C. elegans* B0348.6a gene (SEQ ID NO.2), was obtained by PCR from genomic *C. elegans* DNA, using the following primers:

- forward primer : GTGAATGCGT CCGATGCTTC [SEQ ID NO: 3]
- reverse primer : TGGCTGGAGA AGTTCCTGTA GC [SEQ ID NO: 4]

This fragment was inserted in the *SrfI*-site of expression vector pGN49A (Figure 1, see also WO 00/01846 and British patent application 0012233, both by Applicant). This vector contains two T7 promoters flanking the *SrfI*-site, allowing transcription of a nucleotide sequence inserted into said *SrfI*-site into double stranded RNA, upon binding of a T7 polymerase to said promoter (vide WO 00/01846).

The resulting vector, designated pGN49A- B0348.6a, was transformed overnight into *E. coli* strain AB 309-105 (see EP-A-1 093 526 by applicant, page 17.).

To normalize the culture, 250 µl of the overnight culture (1 ml) was transferred to a 96 well plate and the OD at 600 nm was measured (Fluostar Galaxy plate reader BMG), the remaining 750 µl centrifuged down. Next the pellet was re-suspended in S-complete fed (S-complete supplemented with 0.1mg/ml ampicillin and 1 mM IPTG) and volume adjusted to obtain OD_{600} value of 1.

Example 2: Generation of fat storage phenotype in *C. elegans* - P0 screen for *C. elegans* gene B0348.6a.

In this example, *C. elegans* strain CB1370 containing the temperature sensitive daf-2 allele e-1370 is used (Ogg et al., supra). CB 1370 is publicly available from, for example, the Caenorhabditis Genetics Center (CGC), Minnesota, USA).

To generate the fat-storage phenotype, L1 worms of strain CB 1370 were cultivated at a temperature of 15 °C in S-Complete fed-medium in the wells of a 96 well plate (40 L1 nematodes per well) under essentially synchronized conditions, until the nematodes reached the L2 stage.

Then, the temperature was increased to 25°C, and the worms were further cultivated at said temperature until they reached the L4 stage (about 36-48 hours). Due to the presence of the daf-2 allele e-1370, this raise in temperature from 15°C to 25°C causes the nematodes

to accumulate fat, mainly in their intestinal and hypodermal tissue (vide Ogg et al. and Figures 2A and 2B).

The accumulation of fat (in the form of droplets) was made visible by means of Nile Red staining: L4 animals were washed several times with M9 (supplemented with 0.1% PEG) to remove the remaining *E. coli*, and fixed with MeOH (fc. 33%). After fixation the nematodes were stained with Nile Red (fc 0.375 mM in 37.5% MeOH) for 4 hours. MeOH and excess dye was removed through several washes with M9 (supplemented with 0.1% PEG). The staining pattern was visualized under UV using a 500 nm long pass filter.

For testing the influence of the gene B0348.6a on fat storage, during the steps described above, the worms were grown on 20 μl of the normalized *E.coli* strain containing the pGN49A vector with the RNAi fragment for B0348.6a inserted therein, as obtained in Example 1 (OD_{600} = 1), as a food source. As a reference, the daf-2 (e1370) nematodes were grown in a similar manner, but with *E. coli* strain AB 309-105 containing vector pGN49A without the RNAi fragment for B0348.6a inserted therein as a food source, used in the same amount. All samples were carried out in quadruplicate.

The results were as follows: worms fed on *E.coli* pGN49A- B0348.6a strain, which downregulates the expression of B0348.6a through RNA interference, showed a strong reduction of the accumulation of fat, compared to the reference (vide Figures 2A and 2B).

These results show that B0348.6a is involved in the regulation of (the daf-2 dependent) accumulation of fat in the nematode.

Example 3: Generation of fat storage phenotype in *C. elegans* - F1 screen for *C. elegans* gene C03D6.3.

In this example, *C. elegans* strain CB1370 containing the temperature sensitive daf-2 allele e-1370 is used (Ogg et al., supra). CB 1370 is publicly available from, for example, the Caenorhabditis Genetics Center (CGC), Minnesota, USA).

To generate the RNAi fragment and *E. coli* feeding strain for *C. elegans* gene C03D6.3 (SEQ ID NO:9), the forward primer of SEQ ID NO:10 and the reverse primer of SEQ ID NO:11 were used to generate the RNAi fragment of SEQ ID NO:12, essentially as described in Example 1. This RNAi fragment, which corresponds to 1358 nucleotides of the *C. elegans* gene C03D6.3, was designed to downregulate the *C. elegans* gene C03D6.3.

This RNAi fragment was then inserted into vector pGN49A, essentially as described in Example 1, upon which the resulting vector with the RNAi fragment inserted therein was transformed into *E. coli* strain AB 309-105, again essentially as described in Example 1.

To generate the fat-storage phenotype, L1 worms of strain CB 1370 were cultivated at a temperature of 15 °C in S-Complete fed-medium in the wells of a 96 well plate (1 L1 nematodes per well) under essentially synchronized conditions, until the nematodes reached the L2 stage.

Then, the temperature was increased to 20°C, and the worms were further cultivated at said temperature until their F1 offspring reached the L4 stage (about 144 hrs). Due to the presence of the daf-2 allele e-1370, this raise in temperature from 15°C to 20°C causes the nematodes to accumulate fat, mainly in their intestinal and hypodermal tissue (vide Ogg et al. and Figures 2A and 2B).

The accumulation of fat (in the form of droplets) was made visible by means of Nile Red staining: L4 animals were washed several times with M9 (supplemented with 0.1% PEG) to remove the remaining *E. coli*, and fixed with MeOH (fc. 33%). After fixation the nematodes were stained with Nile Red (fc 0.375 mM in 37.5% MeOH) for 4 hours. MeOH and excess dye was removed through several washes with M9 (supplemented with 0.1% PEG). The staining pattern was visualized under UV using a 500 nm long pass filter.

For testing the influence of the gene C03D6.3on fat storage, during the steps described above, the worms were grown on 30 μl of the normalized *E. coli* pGN49A strain containing the pGN49A vector with the RNAi fragment for C03D6.3 (SEQ ID NO. 12) (OD_{600} = 1) as a food source. As a reference, the daf-2 (e1370) nematodes were grown in a similar manner, but with *E. coli* strain AB 309-105 containing vector pGN49A without the RNAi fragment for C03D6.3 (SEQ ID NO:12) inserted therein, used in the same amount. All samples were carried out in quadruplicate.

The results were as follows: worms fed on the *E. coli* strain with the pGN49A vector with the RNAi fragment for C03D6.3 (SEQ ID NO:12), which downregulates the expression of CO3D6.3 through RNA interference, showed a strong reduction of the accumulation of fat, compared to the reference (vide Figures 2A and 2B).

These results show that C03D6.3 is involved in the regulation of (the daf-2 dependent) the *daf*-pathway and the accumulation of fat in the nematode. It is known in the art that both are models for insulin resistance and fat handling in mammals, such as humans.

Bio-informatic analysis revealed three human amino acid sequences that are orthologous with the amino acid sequence of the C03D6.3 protein (SEQ ID NO:8), i.e. SEQ ID NO:13 (BlastP score: 1069; BlastP expectation value: e-116; the corresponding nucleotide sequence is given in SEQ ID NO:14); SEQ ID NO:15 (BlastP score: 1067; BlastP expectation value: e-116) and; SEQ ID NO:16 (BlastP score: 933; BlastP expectation value: e-100).

Examples 4 - 58

For each of the Examples 4-58, the "*forward primer*" and "*reverse primer*" indicated in the fourth column of Table 1 below were used to generate the respective "*RNAi fragment*" indicated in the fifth column of Table 1 below, essentially as described in Example 1, in which each respective RNAi fragment was designed to downregulate the "*C. elegans amino acid/nucleotide sequence*" indicated in the third column of Table 1 below.

Each RNAi fragment was then inserted into vector pGN49a, essentially as described in Example 1, upon which the resulting vector with the RNAi fragment inserted therein was transformed into *E. coli* strain AB 309-105, again essentially as described in Example 1.

Each of the respective *E. coli* RNAi feeding strains to obtained was used to downregulate the corresponding *C. elegans* gene by RNAi feeding, essentially as described in Example 2 (indicated as "*P0*" in the second column of Table 1) or essentially as described in Example 3 (indicated as "*F1*" in the second column of Table 1).

In all of the Examples 4 - 58, such downregulation resulted in a strong reduction of the accumulation of FAT, compared to the reference.

For each of the *C. elegans* genes indicated in the third column of Table 1, a bio-informatic analysis was performed to determine the human orthologs. These are mentioned in the sixth (amino acid sequence) and seventh (corresponding DNA sequence, if available) of Table 1, respectively. The numbers in parentheses in the sixth column of Table 1 indicate the "score" and the "expectation value" for each human ortholog, as determined using the BlastP algorithm.

TABLE 1

Ex. No.	P0/ F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
2	P0	SEQ ID NO: 1/ SEQ ID NO: 2	SEQ ID NO: 3/ SEQ ID NO: 4	SEQ ID NO: 5	SEQ ID NO: 6 (562; 9.00E-58)	SEQ ID NO: 7
3	F1	SEQ ID NO: 8/ SEQ ID NO: 9	SEQ ID NO: 10/ SEQ ID NO: 11	SEQ ID NO: 12	SEQ ID NO: 13 (1069; e-116)	SEQ ID NO: 14
					SEQ ID NO: 15 (1067; e-116)	---
					SEQ ID NO: 16 (933; e-100)	---
4	P0	SEQ ID NO: 17/ SEQ ID NO: 18	SEQ ID NO: 19/ SEQ ID NO: 20	SEQ ID NO: 21	SEQ ID NO: 22 (551; 1.00E-55)	SEQ ID NO: 23
					SEQ ID NO: 24 (442; 1.00E-40)	SEQ ID NO: 25

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
5	P0	SEQ ID NO: 26/ SEQ ID NO: 27	SEQ ID NO: 28/ SEQ ID NO: 29	SEQ ID NO: 30	SEQ ID NO: 31 (1443; e-159)	SEQ ID NO: 32
					SEQ ID NO: 33 (1416; e-156)	SEQ ID NO: 34
					SEQ ID NO: 35 (1415; e-156)	SEQ ID NO: 36
6	P0	SEQ ID NO: 37/ SEQ ID NO: 38	SEQ ID NO: 39/ SEQ ID NO: 40	SEQ ID NO: 41	SEQ ID NO: 42 (501; 4.00E-50)	SEQ ID NO: 43
					SEQ ID NO: 44 (501; 4.00E-50)	SEQ ID NO: 45
					SEQ ID NO: 46 (498; 8.00E-50)	SEQ ID NO: 47
					SEQ ID NO: 48 (471; 1.00E-46)	SEQ ID NO: 49

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
7	P0	SEQ ID NO: 50/ SEQ ID NO: 51	SEQ ID NO: 52/ SEQ ID NO: 53	SEQ ID NO: 54	SEQ ID NO: 55 (186; 6.00E-14)	SEQ ID NO: 56
					SEQ ID NO: 57 (186; 6.00E-14)	SEQ ID NO: 58
					SEQ ID NO: 59 (182; 2.00E-13)	---
					SEQ ID NO: 60 (182; 2.00E-13)	SEQ ID NO: 61
8	P0	SEQ ID NO: 62/ SEQ ID NO: 63	SEQ ID NO: 64/ SEQ ID NO: 65	SEQ ID NO: 66	SEQ ID NO: 67 (1014; e-109)	SEQ ID NO: 68
					SEQ ID NO: 69 (1014; e-109)	SEQ ID NO: 70
					SEQ ID NO: 71 (1008; e-109)	---

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
9	F1	SEQ ID NO: 72/ SEQ ID NO:73	SEQ ID NO: 74/ SEQ ID NO: 75	SEQ ID NO: 76	SEQ ID NO: 77 (957; e-102)	SEQ ID NO: 78
					SEQ ID NO: 79 (908; 9.00E-97)	SEQ ID NO: 80
					SEQ ID NO: 81 (908; 9.00E-97)	----
10	P0	SEQ ID NO: 82/ SEQ ID NO: 83	SEQ ID NO: 84/ SEQ ID NO: 85	SEQ ID NO: 86	SEQ ID NO: 87 (211; 2.00E-16)	SEQ ID NO: 88
					SEQ ID NO: 89 (175; 3.00E-12)	SEQ ID NO: 90
					SEQ ID NO: 91 (175; 3.00E-12)	SEQ ID NO: 92
11	P0	SEQ ID NO: 93/ SEQ ID NO: 94	SEQ ID NO: 95/ SEQ ID NO: 96	SEQ ID NO: 97	SEQ ID NO: 98 (1365; e-150)	SEQ ID NO: 99
12	P0	SEQ ID NO: 100/ SEQ ID NO: 101	SEQ ID NO: 102/ SEQ ID NO: 103	SEQ ID NO: 104	SEQ ID NO: 105 (264; 1.00E-23)	----

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
13	P0	SEQ ID NO: 106/ SEQ ID NO: 107	SEQ ID NO: 108/ SEQ ID NO: 109	SEQ ID NO: 110	SEQ ID NO: 111 (228; 1.00E-18)	SEQ ID NO: 112
					SEQ ID NO: 113 (223; 4.00E-18)	SEQ ID NO: 114
14	F1	SEQ ID NO: 115/ SEQ ID NO: 116	SEQ ID NO: 117/ SEQ ID NO: 118	SEQ ID NO: 119	SEQ ID NO: 120 (424; 1.00E-41)	SEQ ID NO: 121
					SEQ ID NO: 122 (382; 7.00E-37)	SEQ ID NO: 123
					SEQ ID NO: 124 (382; 7.00E-37)	----
15	P0	SEQ ID NO: 125/ SEQ ID NO: 126	SEQ ID NO: 127/ SEQ ID NO: 128	SEQ ID NO: 129	SEQ ID NO: 130 (781; 2.00E-82)	SEQ ID NO: 131
					SEQ ID NO: 132 (779; 3.00E-82)	SEQ ID NO: 133

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
16	P0	SEQ ID NO: 134/ SEQ ID NO: 135	SEQ ID NO: 136/ SEQ ID NO: 137	SEQ ID NO: 138	SEQ ID NO: 139 (318; 6.00E-29)	SEQ ID NO: 140
					SEQ ID NO: 141 (318; 6.00E-29)	SEQ ID NO: 142
17	P0	SEQ ID NO: 143/ SEQ ID NO: 144	SEQ ID NO: 145/ SEQ ID NO: 146	SEQ ID NO: 147	SEQ ID NO: 148 (480; 4.00E-48)	SEQ ID NO: 149
					SEQ ID NO: 150 (374; 8.00E-36)	SEQ ID NO: 151
					SEQ ID NO: 152 (374; 8.00E-36)	SEQ ID NO: 153
					SEQ ID NO: 154 (369; 3.00E-35)	SEQ ID NO: 155
					SEQ ID NO: 156 (344; 2.00E-32)	SEQ ID NO: 157
18	F1	SEQ ID NO: 158/ SEQ ID NO: 159	SEQ ID NO: 160/ SEQ ID NO: 161	SEQ ID NO: 162	SEQ ID NO: 163 (2152; 0)	SEQ ID NO: 164

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
19	P0	SEQ ID NO: 165/ SEQ ID NO: 166	SEQ ID NO: 167/ SEQ ID NO: 168	SEQ ID NO: 169	SEQ ID NO: 170 (194; 7.00E-16)	SEQ ID NO: 171
20	P0	SEQ ID NO: 172/ SEQ ID NO: 173	SEQ ID NO: 174/ SEQ ID NO: 175	SEQ ID NO: 176	SEQ ID NO: 177 (799; 5.00E-85)	----
					SEQ ID NO: 178 (799; 5.00E-85)	SEQ ID NO: 179
21	F1	SEQ ID NO: 180/ SEQ ID NO: 181	SEQ ID NO: 182/ SEQ ID NO: 183	SEQ ID NO: 184	SEQ ID NO: 185 (338; 2.00E-32)	SEQ ID NO: 186
22	F1	SEQ ID NO: 187/ SEQ ID NO: 188	SEQ ID NO: 189/ SEQ ID NO: 190	SEQ ID NO: 191	SEQ ID NO: 192 (716; 2.00E-75)	SEQ ID NO: 193
23	P0	SEQ ID NO: 194/ SEQ ID NO: 195	SEQ ID NO: 196/ SEQ ID NO: 197	SEQ ID NO: 198	SEQ ID NO: 199 (542; 4.00E-55)	SEQ ID NO: 200
24	F1	SEQ ID NO: 201/ SEQ ID NO: 202	SEQ ID NO: 203/ SEQ ID NO: 204	SEQ ID NO: 205	SEQ ID NO: 206 (1034; e-112)	SEQ ID NO: 207
					SEQ ID NO: 208 (1031; e-111)	----

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
25	P0	SEQ ID NO: 209/ SEQ ID NO: 210	SEQ ID NO: 211/ SEQ ID NO: 212	SEQ ID NO: 213	SEQ ID NO: 214 (206; 1.00E-15)	SEQ ID NO: 215
					SEQ ID NO: 216 (204; 2.00E-15)	SEQ ID NO: 217
26	P0	SEQ ID NO: 218/ SEQ ID NO: 219	SEQ ID NO: 220/ SEQ ID NO: 221	SEQ ID NO: 222	SEQ ID NO: 223 (579; 2.00E-59)	SEQ ID NO: 224
					SEQ ID NO: 225 (577; 4.00E-59)	SEQ ID NO: 226
27	P0	SEQ ID NO: 227/ SEQ ID NO: 228	SEQ ID NO: 229/ SEQ ID NO: 230	SEQ ID NO: 231	SEQ ID NO: 232 (580; 3.00E-59)	SEQ ID NO: 233
					SEQ ID NO: 234 (580; 3.00E-59)	----
28	P0	SEQ ID NO: 235/ SEQ ID NO: 236	SEQ ID NO: 237/ SEQ ID NO: 238	SEQ ID NO: 239	SEQ ID NO: 240 (1850; 0)	SEQ ID NO: 241
					SEQ ID NO: 242 (1848; 0)	SEQ ID NO: 243

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
29	P0	SEQ ID NO: 244/ SEQ ID NO: 245	SEQ ID NO: 246/ SEQ ID NO: 247	SEQ ID NO: 248	SEQ ID NO: 249 (1547; e-172)	SEQ ID NO: 250
30	P0	SEQ ID NO: 251/ SEQ ID NO: 252	SEQ ID NO: 253/ SEQ ID NO: 254	SEQ ID NO: 255	SEQ ID NO: 256 (1830; 0)	SEQ ID NO: 257
31	P0	SEQ ID NO: 258/ SEQ ID NO: 259	SEQ ID NO: 260/ SEQ ID NO: 261	SEQ ID NO: 262	SEQ ID NO: 263 (3082; 0)	SEQ ID NO: 264
					SEQ ID NO: 265 (3058; 0)	SEQ ID NO: 266
					SEQ ID NO: 267 (3029; 0)	SEQ ID NO: 268
					SEQ ID NO: 269 (3010; 0)	SEQ ID NO: 270
					SEQ ID NO: 271 (2501; 0)	----
					SEQ ID NO: 272 (2363; 0)	SEQ ID NO: 273

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
32	F1	SEQ ID NO: 274/ SEQ ID NO: 275	SEQ ID NO: 276/ SEQ ID NO: 277	SEQ ID NO: 278	SEQ ID NO: 279 (1788; 0)	SEQ ID NO: 280
					SEQ ID NO: 281 (1787; 0)	---
					SEQ ID NO: 282 (1786; 0)	---
					SEQ ID NO: 283 (1768; 0)	SEQ ID NO: 284
					SEQ ID NO: 285 (1764; 0)	SEQ ID NO: 286
					SEQ ID NO: 287 (1718; 0)	----
					SEQ ID NO: 288 (1710; 0)	----
					SEQ ID NO: 289 (1681; 0)	SEQ ID NO: 290

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
33	F1	SEQ ID NO: 291/ SEQ ID NO: 292	SEQ ID NO: 293/ SEQ ID NO: 294	SEQ ID NO: 295	SEQ ID NO: 296 (2735; 0)	SEQ ID NO: 297
34	P0	SEQ ID NO: 298/ SEQ ID NO: 299	SEQ ID NO: 300/ SEQ ID NO: 301	SEQ ID NO: 302	SEQ ID NO: 303 (1061; e-115)	----
					SEQ ID NO: 304 (1057; e-115)	----
					SEQ ID NO: 305 (1052; e-114)	SEQ ID NO: 306
35	P0	SEQ ID NO: 307/ SEQ ID NO: 308	SEQ ID NO: 309/ SEQ ID NO: 310	SEQ ID NO: 311	SEQ ID NO: 312 (658; 1.00E-68)	SEQ ID NO: 313
					SEQ ID NO: 314 (572; 1.00E-58)	SEQ ID NO: 315
					SEQ ID NO: 316 (572; 1.00E-58)	-----
					SEQ ID NO: 317 (572; 1.00E-58)	SEQ ID NO: 318

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
36	F1	SEQ ID NO: 319/ SEQ ID NO: 320	SEQ ID NO: 321/ SEQ ID NO: 322	SEQ ID NO: 323	SEQ ID NO: 324 (125; 2.00E-06)	SEQ ID NO: 325
					SEQ ID NO: 326 (125; 2.00E-06)	SEQ ID NO: 327
37	P0	SEQ ID NO: 328/ SEQ ID NO: 329	SEQ ID NO: 330/ SEQ ID NO: 331	SEQ ID NO: 332	SEQ ID NO: 333 (208; 2.00E-16)	SEQ ID NO: 334
38	P0	SEQ ID NO: 335/ SEQ ID NO: 336	SEQ ID NO: 337/ SEQ ID NO: 338	SEQ ID NO: 339	SEQ ID NO: 340 (1322; e-145)	SEQ ID NO: 341
					SEQ ID NO: 342 (1302; e-142)	SEQ ID NO: 343
					SEQ ID NO: 344 (1292; e-141)	SEQ ID NO: 345

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
39	P0	SEQ ID NO: 346/ SEQ ID NO: 347	SEQ ID NO: 348/ SEQ ID NO: 349	SEQ ID NO: 350	SEQ ID NO: 351 (194; 8.00E-15)	----
					SEQ ID NO: 352 (194; 8.00E-15)	----
					SEQ ID NO: 353 (194; 8.00E-15)	----
40	F1	SEQ ID NO: 354/ SEQ ID NO: 355	SEQ ID NO: 356/ SEQ ID NO: 357	SEQ ID NO: 358	SEQ ID NO: 359 (493; 2.00E-49)	SEQ ID NO: 360
					SEQ ID NO: 361 (463; 6.00E-46)	SEQ ID NO: 362
41	P0	SEQ ID NO: 363/ SEQ ID NO: 364	SEQ ID NO: 365/ SEQ ID NO: 366	SEQ ID NO: 367	SEQ ID NO: 368 (783; 6.00E-83)	SEQ ID NO: 369

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
42	P0	SEQ ID NO: 370/ SEQ ID NO: 371	SEQ ID NO: 372/ SEQ ID NO: 373	SEQ ID NO: 374	SEQ ID NO: 375 (2285; 0)	SEQ ID NO: 376
					SEQ ID NO: 377 (2244; 0)	SEQ ID NO: 378
					SEQ ID NO: 379 (2067; 0)	SEQ ID NO: 380
					SEQ ID NO: 381 (2060; 0)	SEQ ID NO: 382
43	F1	SEQ ID NO: 383/ SEQ ID NO: 384	SEQ ID NO: 385/ SEQ ID NO: 386	SEQ ID NO: 387	SEQ ID NO: 388 (171; 1.00E-12)	----
					SEQ ID NO: 389 (171; 1.00E-12)	----
					SEQ ID NO: 390 (163; 9.00E-12)	----

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
44	P0	SEQ ID NO: 391/ SEQ ID NO: 392	SEQ ID NO: 393/ SEQ ID NO: 394	SEQ ID NO: 395	SEQ ID NO: 396 (1836; 0)	SEQ ID NO: 397
					SEQ ID NO: 398 (1779; 0)	SEQ ID NO: 399
45	P0	SEQ ID NO: 400/ SEQ ID NO: 401	SEQ ID NO: 402/ SEQ ID NO: 403	SEQ ID NO: 404	SEQ ID NO: 405 (1768; 0)	SEQ ID NO: 406
46	F1	SEQ ID NO: 407/ SEQ ID NO: 408	SEQ ID NO: 409/ SEQ ID NO: 410	SEQ ID NO: 411	SEQ ID NO: 412 (296; 3.00E-27)	SEQ ID NO: 413
47	P0	SEQ ID NO: 414/ SEQ ID NO: 415	SEQ ID NO: 416/ SEQ ID NO: 417	SEQ ID NO: 418	SEQ ID NO: 419 (1000; e-108)	SEQ ID NO: 420
					SEQ ID NO: 422 (960; e-103)	----
48	F1	SEQ ID NO: 423/ SEQ ID NO: 424	SEQ ID NO: 425/ SEQ ID NO: 426	SEQ ID NO: 427	SEQ ID NO: 428 (514; 2.00E-51)	SEQ ID NO: 429
					SEQ ID NO: 430 (477; 3.00E-47)	SEQ ID NO: 431

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
49	P0	SEQ ID NO: 432/ SEQ ID NO: 433	SEQ ID NO: 434/ SEQ ID NO: 435	SEQ ID NO: 436	SEQ ID NO: 437 (566; 9.00E-58)	SEQ ID NO: 438
					SEQ ID NO: 439 (566; 9.00E-58)	SEQ ID NO: 440
50	P0	SEQ ID NO: 441/ SEQ ID NO: 442	SEQ ID NO: 443/ SEQ ID NO: 444	SEQ ID NO: 445	SEQ ID NO: 446 (2189; 0)	SEQ ID NO: 447
51		SEQ ID NO: 448/ SEQ ID NO: 449	SEQ ID NO: 450/ SEQ ID NO: 451	SEQ ID NO: 452	SEQ ID NO: 453 (491; 6.00E-49)	SEQ ID NO: 454
					SEQ ID NO: 455 (487; 2.00E-48)	SEQ ID NO: 456
					SEQ ID NO: 457 (459; 3.00E-45)	SEQ ID NO: 458
					SEQ ID NO: 459 (432; 4.00E-42)	SEQ ID NO: 460
52	P0	SEQ ID NO: 461/ SEQ ID NO: 462	SEQ ID NO: 463/ SEQ ID NO: 464	SEQ ID NO: 465	SEQ ID NO: 466 (258; 6.00E-22)	----

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
53	F1	SEQ ID NO: 467/ SEQ ID NO: 468	SEQ ID NO: 469/ SEQ ID NO: 470	SEQ ID NO: 471	SEQ ID NO: 472 (1994; 0)	----
					SEQ ID NO: 473 (1988; 0)	SEQ ID NO: 474
54	P0	SEQ ID NO: 475/ SEQ ID NO: 476	SEQ ID NO: 477/ SEQ ID NO: 478	SEQ ID NO: 479	SEQ ID NO: 480 (306; 1.00E-27)	SEQ ID NO: 481
					SEQ ID NO: 482 (274;7.00E-24)	SEQ ID NO: 483
					SEQ ID NO: 484 (242; 4.00E-20)	SEQ ID NO: 485
					SEQ ID NO: 486 (233; 4.00E-19)	SEQ ID NO: 487
					SEQ ID NO: 488 (229; 1.00E-18)	SEQ ID NO: 489

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
55	P0	SEQ ID NO: 490/ SEQ ID NO: 491	SEQ ID NO: 492/ SEQ ID NO: 493	SEQ ID NO: 494	SEQ ID NO: 495 (1402; e-154)	SEQ ID NO: 496
					SEQ ID NO: 497 (1394; e-153)	----
					SEQ ID NO: 498 (1221; e-133)	SEQ ID NO: 499
					SEQ ID NO: 500 (1217; e-133)	----
56	P0	SEQ ID NO: 501/ SEQ ID NO: 502	SEQ ID NO: 503/ SEQ ID NO: 504	SEQ ID NO: 505	SEQ ID NO: 506 (173; 1.00E-11)	----
57	F1	SEQ ID NO: 507/ SEQ ID NO: 508	SEQ ID NO: 509/ SEQ ID NO: 510	SEQ ID NO: 511	SEQ ID NO: 512 (846; 3.00E-90)	SEQ ID NO: 513
					SEQ ID NO: 514 (704; 1.00E-73)	SEQ ID NO: 515
					SEQ ID NO: 516 (630; 4.00E-65)	SEQ ID NO: 517

TABLE 1 (continued)

Ex. No.	P0 / F1	C. elegans amino acid/ nucleotide sequence	Forward primer/ reverse primer	RNAi fragment	Human amino acid sequence	Human nucleotide sequence
58	F1	SEQ ID NO: 518/ SEQ ID NO: 519	SEQ ID NO: 520/ SEQ ID NO: 521	SEQ ID NO: 522	SEQ ID NO: 523 (495; 4.00E-50)	SEQ ID NO: 524
					SEQ ID NO: 525 (402; 2.00E-39)	SEQ ID NO: 526

The sequences of SEQ ID Nos 1-526 are as follows. All *C. elegans* amino acid sequences and all *C. elegans* nucleotide sequences are derived from the WormPep and WormGene databases, respectively. All other sequences (with the exception of the artificial primer sequences and the RNAi fragments) are human sequences, unless indicated otherwise:

SEQ ID NO: 1: B0348.6a; amino acid sequence from *C. elegans*

SEQ ID NO: 2: B0348.6a ; nucleotide sequence from *C. elegans*

SEQ ID NO: 3: 'B0348.6a', 'B0348.6' Forward primer

SEQ ID NO: 4: 'B0348.6a', 'B0348.6' Reverse primer

SEQ ID NO: 5: B0348.6a RNAi fragment (complement)

SEQ ID NO: 6: Genbank protein 4503535 for B0348.6a. Date of entry: 31-OCT-2000. Rychlik et al., Proc. Natl. Acad. Sci. U.S.A. 84 (4), 945-949 (1987); Pubmed: 3469651; Medline: 87147214.
Dorfman et al.; Genomics 9 (4), 785-788 (1991); Pubmed: 1674733; Medline: 91244329
Pelletier et al., Brook and Housman; Genomics 10 (4), 1079-1082 (1991); Pubmed: 1916814; Medline: 92009911
Jones et al., Somat. Cell Mol. Genet. 23 (3), 221-223 (1997); Pubmed: 9330633; Medline: 97471692

SEQ ID NO: 7: Genbank DNA EIF4E for B0348.6a. Date of entry: 31-OCT-2000
Rychlik et al., Proc. Natl. Acad. Sci. U.S.A. 84 (4), 945-949 (1987); Pubmed: 3469651; Medline: 87147214.
Dorfman et al.; Genomics 9 (4), 785-788 (1991); Pubmed: 1674733; Medline: 91244329
Pelletier et al., Brook and Housman; Genomics 10 (4), 1079-1082 (1991); Pubmed: 1916814; Medline: 92009911
Jones et al., Somat. Cell Mol. Genet. 23 (3), 221-223 (1997); Pubmed: 9330633; Medline: 97471692

SEQ ID NO: 8: C03D6.3 ; amino acid sequence from *C. elegans*

SEQ ID NO: 9: C03D6.3; nucleotide sequence from *C. elegans*

SEQ ID NO: 10: 'C03D6.3' Forward primer

SEQ ID NO: 11: 'C03D6.3' Reverse primer

SEQ ID NO: 12: C03D6.3 RNAi fragment

SEQ ID NO: 13: Genbank protein 18042848 for C03D6.3. Date of entry: 22-JAN-2002

SEQ ID NO: 14: Genbank DNA BC019954 for C03D6.3. Date of entry: 22-JAN-2002

SEQ ID NO: 15: Genbank protein 6685628 for C03D6.3. Date of entry: 15-JUN-2002
Yue et al., Proc. Natl. Acad. Sci. U.S.A. 94 (24), 12898-12903 (1997); Medline: 98058741
Yamada-Okabe et al., Nucleic Acids Res. 26 (7), 1700-1706 (1998); Medline: 98181073
Tsukamoto et al., Biochem. Biophys. Res. Commun. 243 (1), 101-108 (1998); Medline: 98139874

SEQ ID NO: 16: Genbank protein 7513158 for C03D6.3. Date of entry: 19-JAN-2001
Tsukamoto et al., Biochem. Biophys. Res. Commun. 243 (1), 101-108 (1998); Medline: 98139874

SEQ ID NO: 17: C04A2.3a ; amino acid sequence from *C. elegans*

SEQ ID NO: 18: C04A2.3a ; nucleotide sequence from *C. elegans*

SEQ ID NO: 19: 'C04A2.3a', 'C04A2.2' Forward primer

SEQ ID NO: 20: 'C04A2.3a', 'C04A2.2' Reverse primer

SEQ ID NO: 21: C04A2.3a RNAi fragment

SEQ ID NO: 22: Genbank protein 19923393 for C04A2.3a. Date of entry: 04-APR-2002

SEQ ID NO: 23: Genbank DNA RERE for C04A2.3a. Date of entry: 04-APR-2002

SEQ ID NO: 24: Genbank protein 3413878 for C04A2.3a. Date of entry: 13-AUG-1998
Seki et al., DNA Res. 4 (5), 345-349 (1997); Pubmcd: 9455484; Medline: 98116662

SEQ ID NO: 25: Genbank DNA AB007927 for C04A2.3a. Date of entry: 13-AUG-1998
Seki et al., DNA Res. 4 (5), 345-349 (1997); Pubmed: 9455484; Medline: 98116662

SEQ ID NO: 26: C07A12.4a ; amino acid sequence from *C. elegans*

SEQ ID NO: 27: C07A12.4a ; nucleotide sequence from *C. elegans*

SEQ ID NO: 28: 'C07A12.4a', 'C07A12.4' Forward primer

SEQ ID NO: 29: 'C07A12.4a', 'C07A12.4' Reverse primer

SEQ ID NO: 30: C07A12.4a RNAi fragment

SEQ ID NO: 31: Genbank protein 20070125 for C07A12.4a. Date of entry: 08-APR-2002

SEQ ID NO: 32: Genbank DNA P4HB for C07A12.4a. Date of entry: 08-APR-2002
Gosden et al., Cytogenet. Cell Genet. 43 (3-4), 150-153 (1986); Pubmed: 3467900; Medline: 87104388
Pihlajaniemi et al., EMBO J. 6 (3), 643-649 (1987); Pubmed: 3034602; Medline: 87218523
Cheng et al., J. Biol. Chem. 262 (23), 11221-11227 (1987); Pubmed: 3611107; Medline: 87280213
Tasanen et al., J. Biol. Chem. 263 (31), 16218-16224 (1988); Pubmed: 2846539; Medline: 89034087

SEQ ID NO: 33: Genbank protein 339647 for C07A12.4a. Date of entry: 14-JAN-1995

SEQ ID NO: 34: Genbank DNA HUMTHBP for C07A12.4a. Date of entry: 14-JAN-1995
Cheng et al., J. Biol. Chem. 262 (23), 11221-11227 (1987); Pubmed: 3611107; Medline: 87280213

SEQ ID NO: 35: Genbank protein 35655 for C07A12.4a. Date of entry: 30-MAR-1995
Pihlajaniemi et al., EMBO J. 6 (3), 643-649 (1987); Medline: 87218523

SEQ ID NO: 36: Genbank DNA HSPRO4HY for C07A12.4a. Date of entry: 30-MAR-1995
Pihlajaniemi et al, EMBO J. 6 (3), 643-649 (1987); Pubmed: 3034602; Medline: 87218523

SEQ ID NO: 37: C15H11.3 ; amino acid sequence from *C. elegans*

SEQ ID NO: 38: C15H11.3 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 39: 'C15H11.3' Forward primer

SEQ ID NO: 40: 'C15H11.3' Reverse primer

SEQ ID NO: 41: C15H11.3 RNAi fragment (complement)

SEQ ID NO: 42: Genbank protein 15487670 for C15H11.3. Date of entry: 07-SEP-2001
Yoon et al., Immunity 6 (5), 571-582 (1997); Pubmed: 9175835; Medline: 97318898
Gruter et al., Mol. Cell 1 (5), 649-659 (1998); Pubmed: 9660949; Medline: 98325379
Kang. and Cullen, Genes Dev. 13 (9), 1126-1139 (1999); Pubmed: 10323864; Medline: 99257272
Katahira et al., EMBO J. 18 (9), 2593-2609 (1999); Pubmed: 10228171; Medline: 99246282

Herold et al., Mol. Cell. Biol. 20 (23), 8996-9008 (2000); Pubmed: 11073998; Medline: 20528640

SEQ ID NO: 43: Genbank DNA NXF1 for C15H11.3. Date of entry: 07-SEP-2001

Yoon et al., Immunity 6 (5), 571-582 (1997); Pubmed: 9175835; Medline: 97318898

Gruter et al., Mol. Cell 1 (5), 649-659 (1998); Pubmed: 9660949; Medline: 98325379

Kang. and Cullen, Genes Dev. 13 (9), 1126-1139 (1999); Pubmed: 10323864; Medline: 99257272

Katahira et al., EMBO J. 18 (9), 2593-2609 (1999); Pubmed: 10228171; Medline: 99246282

Herold et al., Mol. Cell. Biol. 20 (23), 8996-9008 (2000); Pubmed: 11073998; Medline: 20528640

SEQ ID NO: 44: Genbank protein 1724120 for C15H11.3. Date of entry: 15-OCT-1997

Yoon et al., Immunity 6 (5), 571-582 (1997); Pubmed: 9175835; Medline: 97318898

SEQ ID NO: 45: Genbank DNA HSU80073 for C15H11.3. Date of entry: 15-OCT-1997

Yoon et al., Immunity 6 (5), 571-582 (1997); Pubmed: 9175835; Medline: 97318898

SEQ ID NO: 46: Genbank protein 4406524 for C15H11.3. Date of entry: 12-MAR-1999

SEQ ID NO: 47: Genbank DNA AF126246 for C15H11.3. Date of entry: 12-MAR-1999

SEQ ID NO: 48: Genbank protein 13430854 for C15H11.3. Date of entry: 15-JAN-2003

Herold et al., Mol. Cell. Biol. 20 (23), 8996-9008 (2000); Pubmed: 11073998; Medline: 20528640

Wang et al., Nat. Genet. 27 (4), 422-426 (2001); Pubmed: 11279525; Medline: 21175748

SEQ ID NO: 49: Genbank DNA NXF2 for C15H11.3. Date of entry: 15-JAN-2003

Herold et al., Mol. Cell. Biol. 20 (23), 8996-9008 (2000); Pubmed: 11073998; Medline: 20528640

Wang et al., Nat. Genet. 27 (4), 422-426 (2001); Pubmed: 11279525; Medline: 21175748

SEQ ID NO: 50: C17E7.5 ; amino acid sequence from *C. elegans*

SEQ ID NO: 51: C17E7.5 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 52: 'C17E7.5' Forward primer

SEQ ID NO: 53: 'C17E7.5' Reverse primer

SEQ ID NO: 54: C17E7.5 RNAi fragment (complement)

SEQ ID NO: 55: Genbank protein 4826980 for C17E7.5. Date of entry: 05-NOV-2002

SEQ ID NO: 56: Genbank DNA NR1H4 for C17E7.5. Date of entry: 05-NOV-2002
Forman et al., Cell 81 (5), 687-693 (1995); Pubmed: 7774010; Medline: 95292336
Zavacki et al., Proc. Natl. Acad. Sci. U.S.A. 94 (15), 7909-7914 (1997); Pubmed: 9223286; Medline: 97368291
Makishima et al., Science 284 (5418), 1362-1365 (1999); Pubmed: 10334992; Medline: 99269275
Parks et al., Science 284 (5418), 1365-1368 (1999); Pubmed: 10334993; Medline: 99269276

SEQ ID NO: 57: Genbank protein 21434816 for C17E7.5. Date of entry: 17-JUN-2002
Huber et al., Gene 290 (1-2), 35-43 (2002); Pubmed: 12062799; Medline: 22057885

SEQ ID NO: 58: Genbank DNA AF478445 for C17E7.5. Date of entry: 17-JUN-2002
Huber et al., Gene 290 (1-2), 35-43 (2002); Pubmed: 12062799; Medline: 22057885

SEQ ID NO: 59: Genbank protein 21263792 for C17E7.5. Date of entry: 15-JUN-2002
Makishima et al., Science 284 (5418), 1362-1365 (1999); Medline: 99269275
Parks et al., Science 284 (5418), 1365-1368 (1999); Medline: 99269276

SEQ ID NO: 60: Genbank protein 21434818 for C17E7.5. Date of entry: 17-JUN-2002
Huber et al., Gene 290 (1-2), 35-43 (2002); Pubmed: 12062799; Medline: 22057885

SEQ ID NO: 61: Genbank DNA AF478446 for C17E7.5. Date of entry: 17-JUN-2002
Huber et al., Gene 290 (1-2), 35-43 (2002); Pubmed: 12062799; Medline: 22057885

SEQ ID NO: 62: C23G10.4a ; amino acid sequence from *C. elegans*

SEQ ID NO: 63: C23G10.4a ; nucleotide sequence from *C. elegans*

SEQ ID NO: 64: 'C23G10.4a' Forward primer

SEQ ID NO: 65: 'C23G10.4a' Reverse primer

SEQ ID NO: 66: C23G10.4a RNAi fragment

SEQ ID NO: 67: Genbank protein 27370953 for C23G10.4a. Date of entry: 24-DEC-2002

SEQ ID NO: 68: Genbank DNA BC039845 for C23G10.4a. Date of entry: 24-DEC-2002

SEQ ID NO: 69: Genbank protein 25777600 for C23G10.4a. Date of entry: 23-DEC-2002

SEQ ID NO: 70: Genbank DNA PSMD1 for C23G10.4a. Date of entry: 23-DEC-2002
Coux et al., Annu. Rev. Biochem. 65, 801-847 (1996); Pubmed: 8811196; Medline: 96407109
Yokota et al., Mol. Biol. Cell 7 (6), 853-870 (1996); Pubmed: 8816993; Medline: 96413887

SEQ ID NO: 71: Genbank protein 3914474 for C23G10.4a. Date of entry: 15-JUN-2002
Yokota et al., Mol. Biol. Cell 7 (6), 853-870 (1996); Pubmed: 8816993; Medline: 96413887

SEQ ID NO: 72: C25H3.8 ; amino acid sequence from *C. elegans*

SEQ ID NO: 73: C25H3.8 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 74: 'C25H3.8' Forward primer

SEQ ID NO: 75: 'C25H3.8' Reverse primer

SEQ ID NO: 76: C25H3.8 RNAi fragment (complement)

SEQ ID NO: 77: Genbank protein 22041525 for C25H3.8. Date of entry: 03-JAN-2003

SEQ ID NO: 78: Genbank DNA KIAA0453 for C25H3.8. Date of entry: 03-JAN-2003

SEQ ID NO: 79: Genbank protein 6634037 for C25H3.8. Date of entry: 23-DEC-1999
Seki et al., DNA Res. 4 (5), 345-349 (1997); Pubmed: 9455484; Medline: 98116662

SEQ ID NO: 80: Genbank DNA AB007922 for C25H3.8. Date of entry: 23-DEC-1999
Seki et al., DNA Res. 4 (5), 345-349 (1997); Pubmed: 9455484; Medline: 98116662

SEQ ID NO: 81: Genbank protein 7512987 for C25H3.8. Date of entry: 11-JAN-2002
Seki et al., DNA Res. 4 (5), 345-349 (1997); Medline: 98116662

SEQ ID NO: 82: C26C6.5 ; amino acid sequence from *C. elegans*

SEQ ID NO: 83: C26C6.5 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 84: 'C26C6.5', 'C26C6.5a' Forward primer

SEQ ID NO: 85: 'C26C6.5', 'C26C6.5a' Reverse primer

SEQ ID NO: 86: C26C6.5 RNAi fragment (complement)

SEQ ID NO: 87: Genbank protein 19923502 for C26C6.5. Date of entry: 04-APR-2002

SEQ ID NO: 88: Genbank DNA p66alpha for C26C6.5. Date of entry: 04-APR-2002

SEQ ID NO: 89: Genbank protein 6330051 for C26C6.5. Date of entry: 11-NOV-1999
Hirosawa et al., DNA Res. 6 (5), 329-336 (1999); Pubmed: 10574461; Medline: 20039618

SEQ ID NO: 90: Genbank DNA AB032976 for C26C6.5. Date of entry: 11-NOV-1999
Hirosawa et al., DNA Res. 6 (5), 329-336 (1999); Pubmed: 10574461; Medline: 20039618

SEQ ID NO: 91: Genbank protein 21218438 for C26C6.5. Date of entry: 23-DEC-2002
Hirosawa et al., DNA Res. 6 (5), 329-336 (1999); Pubmed: 10574461; Medline: 20039618
Feng et al., Mol. Cell. Biol. 22 (2), 536-546 (2002); Pubmed: 11756549; Medline: 21630035

SEQ ID NO: 92: Genbank DNA P66 for C26C6.5. Date of entry: 23-DEC-2002
Hirosawa et al., DNA Res. 6 (5), 329-336 (1999); Pubmed: 10574461; Medline: 20039618
Feng et al., Mol. Cell. Biol. 22 (2), 536-546 (2002); Pubmed: 11756549; Medline: 21630035

SEQ ID NO: 93: C27D11.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 94: C27D11.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 95: 'C27D11.1' Forward primer

SEQ ID NO: 96: 'C27D11.1' Reverse primer

SEQ ID NO: 97: C27D11.1 RNAi fragment (complement)

SEQ ID NO: 98: Genbank protein 4503509 for C27D11.1.Date of entry: 05-NOV-2002
Kanner et al., Proc. Natl. Acad. Sci. U.S.A. 87 (9), 3328-3332 (1990); Pubmed: 2110361; Medline: 90239007
Johnson et al., J. Biol. Chem. 272 (11), 7106-7113 (1997); Pubmed: 9054404; Medline: 97207269
Ensinger et al., Cytogenet. Cell Genet. 83 (1-2), 74-75 (1998); Pubmed: 9925932; Medline: 99126333

SEQ ID NO: 99: Genbank DNA EIF3S10 for C27D11.1. Date of entry: 05-NOV-2002
Kanner et al., Proc. Natl. Acad. Sci. U.S.A. 87 (9), 3328-3332 (1990); Pubmed: 2110361; Medline: 90239007
Johnson et al., J. Biol. Chem. 272 (11), 7106-7113 (1997); Pubmed: 9054404; Medline: 97207269
Ensinger et al., Cytogenet. Cell Genet. 83 (1-2), 74-75 (1998); Pubmed: 9925932; Medline: 99126333

SEQ ID NO: 100:C31E10.7 ; amino acid sequence from *C. elegans*

SEQ ID NO: 101:C31E10.7 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 102:'C31E10.7' Forward primer

SEQ ID NO: 103:'C31E10.7' Reverse primer

SEQ ID NO: 104:C31E10.7 RNAi fragment

SEQ ID NO: 105:Genbank protein 117809 for C31E10.7. Date of entry: 15-JUN-2002
Yoo and Steggles, Biochem. Biophys. Res. Commun. 156 (1), 576-580 (1988); Medline: 89025904
Giordano and Steggles, Biochem. Biophys. Res. Commun. 178 (1), 38-44 (1991); Medline: 91298976
Abe et al., J. Biochem. 97 (6), 1659-1668 (1985); Medline: 85289161
Nobrega and Ozols, J. Biol. Chem. 246 (6), 1706-1717 (1971); Medline: 71134790
Ozols, J. Biol. Chem. 247 (7), 2242-2245 (1972); Medline: 72154531
Rashid et al., J. Biochem. 74 (5), 985-1002 (1973); Medline: 74074962
Ozols, Biochim. Biophys. Acta 997 (1-2), 121-130 (1989); Medline: 89323209

SEQ ID NO: 106:C33D3.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 107:C33D3.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 108:'C33D3.1' Forward primer

SEQ ID NO: 109:'C33D3.1' Reverse primer

SEQ ID NO: 110:C33D3.1 RNAi fragment

SEQ ID NO: 111:Genbank protein 17998698 for C33D3.1. Date of entry: 05-NOV-2002

SEQ ID NO: 112:Genbank DNA GATA5 for C33D3.1. Date of entry: 05-NOV-2002

SEQ ID NO: 113:Genbank protein 4885255 for C33D3.1. Date of entry: 05-NOV-2002

Suzuki et al., Genomics 38 (3), 283-290 (1996); Pubmed: 8975704; Medline: 97131506

Huggon et al., Biochim. Biophys. Acta 1353 (2), 98-102 (1997); Pubmed: 9294001; Medline: 97438226

Yoshida et al., FEBS Lett. 414 (2), 333-337 (1997); Pubmed: 9315713; Medline: 97459753

SEQ ID NO: 114:Genbank DNA GATA6 for C33D3.1. Date of entry: 05-NOV-2002

Suzuki et al., Genomics 38 (3), 283-290 (1996); Pubmed: 8975704; Medline: 97131506

Huggon et al., Biochim. Biophys. Acta 1353 (2), 98-102 (1997); Pubmed: 9294001; Medline: 97438226

Yoshida et al., FEBS Lett. 414 (2), 333-337 (1997); Pubmed: 9315713; Medline: 97459753

SEQ ID NO: 115:C35E7.10b ; amino acid sequence from *C. elegans*

SEQ ID NO: 116:C35E7.10b ; nucleotide sequence from *C. elegans*

SEQ ID NO: 117:'C35E7.10b' Forward primer

SEQ ID NO: 118:'C35E7.10b' Reverse primer

SEQ ID NO: 119:C35E7.10b RNAi fragment (complement)

SEQ ID NO: 120:Genbank protein 4885231 for C35E7.10b. Date of entry: 01-NOV-2000

Hao et al., Mol. Cell. Biol. 9 (4), 1587-1593 (1989); Pubmed: 2725517; Medline: 89261786

Pawson et al., Mol. Cell. Biol. 9 (12), 5722-5725 (1989); Pubmed: 2685575; Medline: 90066527

Morris et al., Cytogenet. Cell Genet. 53 (4), 196-200 (1990); Pubmed: 2209086; Medline: 91005325

Warrington et al., Genomics 11 (3), 701-708 (1991); Pubmed: 1663488; Medline: 92128953

Kim.and Wong, J. Biol. Chem. 273 (36), 23542-23548 (1998); Pubmed: 9722593; Medline: 98389794

Rosato et al., Mol. Cell. Biol. 18 (10), 5762-5770 (1998); Pubmed: 9742093; Medline: 98414592

SEQ ID NO: 121:Genbank DNA FER for C35E7.10b. Date of entry: 01-NOV-2000

Hao et al., Mol. Cell. Biol. 9 (4), 1587-1593 (1989); Pubmed: 2725517; Medline: 89261786

Pawson et al., Mol. Cell. Biol. 9 (12), 5722-5725 (1989); Pubmed: 2685575; Medline: 90066527

Morris et al., Cytogenet. Cell Genet. 53 (4), 196-200 (1990); Pubmed: 2209086; Medline: 91005325

Warrington et al., Genomics 11 (3), 701-708 (1991); Pubmed: 1663488; Medline: 92128953

Kim.and Wong, J. Biol. Chem. 273 (36), 23542-23548 (1998); Pubmed: 9722593; Medline: 98389794

Rosato et al., Mol. Cell. Biol. 18 (10), 5762-5770 (1998); Pubmed: 9742093; Medline: 98414592

SEQ ID NO: 122:Genbank protein 4503687 for C35E7.10b. Date of entry: 15-JAN-2003

Wong-Staal et al., Science 213 (4504), 226-228 (1981); Pubmed: 6264598; Medline: 81225821

Hampe et al., Cell 30 (3), 775-785 (1982); Pubmed: 6183005; Medline: 83050963

Roebroek et al., EMBO J. 4 (11), 2897-2903 (1985); Pubmed: 4065096; Medline: 86055727

Roebroek et al., Mol. Biol. Rep. 11 (2), 117-125 (1986); Pubmed: 3488499; Medline: 86284598

Alcalay et al., Oncogene 5 (3), 267-275 (1990); Pubmed: 2179816; Medline: 90191711

Polymeropoulos et al., Nucleic Acids Res. 19 (14), 4018 (1991); Pubmed: 1862005; Medline: 91319591

Bowden et al, Nucleic Acids Res. 19 (15), 4311 (1991); Pubmed: 1870997; Medline: 91334170

Jucker et al., Oncogene 7 (5), 943-952 (1992); Pubmed: 1373879; Medline: 92237021

Mathew et al., Cytogenet. Cell Genet. 63 (1), 33-34 (1993); Pubmed: 8449035; Medline: 93193472

Smithgall et al., Crit Rev Oncog 9 (1), 43-62 (1998); Pubmed: 9754447; Medline: 98425418

SEQ ID NO: 123:Genbank DNA FES for C35E7.10b. Date of entry: 15-JAN-2003

Wong-Staal et al., Science 213 (4504), 226-228 (1981); Pubmed: 6264598; Medline: 81225821

Hampe et al., Cell 30 (3), 775-785 (1982); Pubmed: 6183005; Medline: 83050963

Roebroek et al., EMBO J. 4 (11), 2897-2903 (1985); Pubmed: 4065096; Medline: 86055727

Roebroek et al., Mol. Biol. Rep. 11 (2), 117-125 (1986); Pubmed: 3488499; Medline: 86284598

Alcalay et al., Oncogene 5 (3), 267-275 (1990); Pubmed: 2179816; Medline: 90191711

Polymeropoulos et al., Nucleic Acids Res. 19 (14), 4018 (1991); Pubmed: 1862005; Medline: 91319591

Bowden et al, Nucleic Acids Res. 19 (15), 4311 (1991); Pubmed: 1870997; Medline: 91334170

Jucker et al., Oncogene 7 (5), 943-952 (1992); Pubmed: 1373879; Medline: 92237021

Mathew et al., Cytogenet. Cell Genet. 63 (1), 33-34 (1993); Pubmed: 8449035; Medline: 93193472

Smithgall et al., Crit Rev Oncog 9 (1), 43-62 (1998); Pubmed: 9754447; Medline: 98425418

SEQ ID NO: 124:Genbank protein 400127 for C35E7.10b. te of entry: 15-JUN-2002

Alcalay et al., Oncogene 5 (3), 267-275 (1990); Pubmed: 2179816; Medline: 90191711

Roebroek et al., EMBO J. 4 (11), 2897-2903 (1985); Pubmed: 4065096; Medline: 86055727

SEQ ID NO: 125:C49H3.5a ; amino acid sequence from *C. elegans*

SEQ ID NO: 126:C49H3.5a ; nucleotide sequence from *C. elegans*

SEQ ID NO: 127:'C49H3.5a', 'C49H3.5' Forward primer

SEQ ID NO: 128:'C49H3.5a', 'C49H3.5' Reverse primer

SEQ ID NO: 129:C49H3.5a RNAi fragment

SEQ ID NO: 130:Genbank protein 9367873 for C49H3.5a. Date of entry: 16-JUL-2000

SEQ ID NO: 131:Genbank DNA IR2005259 for C49H3.5a. Date of entry: 16-JUL-2000

SEQ ID NO: 132:Genbank protein 23272569 for C49H3.5a

SEQ ID NO: 133:Genbank DNA BC035590 for C49H3.5a. Date of entry: 23-SEP-2002

SEQ ID NO: 134:C53A5.6 ; amino acid sequence from *C. elegans*

SEQ ID NO: 135:C53A5.6 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 136:'C53A5.6' Forward primer

SEQ ID NO: 137:'C53A5.6' Reverse primer

SEQ ID NO: 138:C53A5.6 RNAi fragment (complement)

SEQ ID NO: 139:Genbank protein 5174473 for C53A5.6. Date of entry: 15-JAN-2003

Mold et al., Biochem. Biophys. Res. Commun. 177 (3), 1062-1067 (1991); Pubmed: 1905535; Medline: 91282743

Chang-Yeh et al., Nucleic Acids Res. 19 (13), 3667-3672 (1991); Pubmed: 1906605; Medline: 91305114

Chang-Yeh et al., Genomics 15 (1), 239-241 (1993); Pubmed: 8432546; Medline: 93162669

Kim et al., Gene 228 (1-2), 73-83 (1999); Pubmed: 10072760; Medline: 99173871

SEQ ID NO: 140:Genbank DNA IPP for C53A5.6. Date of entry: 15-JAN-2003

Mold et al., Biochem. Biophys. Res. Commun. 177 (3), 1062-1067 (1991); Pubmed: 1905535; Medline: 91282743

Chang-Yeh et al., Nucleic Acids Res. 19 (13), 3667-3672 (1991); Pubmed: 1906605; Medline: 91305114

Chang-Yeh et al., Genomics 15 (1), 239-241 (1993); Pubmed: 8432546; Medline: 93162669

Kim et al., Gene 228 (1-2), 73-83 (1999); Pubmed: 10072760; Medline: 99173871

SEQ ID NO: 141:Genbank protein 21595829 for C53A5.6. Date of entry: 26-JUN-2002

SEQ ID NO: 142:Genbank DNA BC032544 for C53A5.6. Date of entry: 26-JUN-2002

SEQ ID NO: 143:C56G2.6 ; amino acid sequence from *C. elegans*

SEQ ID NO: 144:C56G2.6 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 145:'C56G2.6' Forward primer

SEQ ID NO: 146:'C56G2.6' Reverse primer

SEQ ID NO: 147:C56G2.6 RNAi fragment (complement)

SEQ ID NO: 148:Genbank protein 7705855 for C56G2.6. Date of entry: 23-DEC-2002

SEQ ID NO: 149:Genbank DNA HSD17B12 for C56G2.6. Date of entry: 23-DEC-2002

SEQ ID NO: 150:Genbank protein 24432037 for C56G2.6. Date of entry: 23-DEC-2002

SEQ ID NO: 151:Genbank DNA LOC83693 for C56G2.6. Date of entry: 23-DEC-2002

SEQ ID NO: 152:Genbank protein 13183088 for C56G2.6. Date of entry: 02-MAR-2001

SEQ ID NO: 153:Genbank DNA AF237684 for C56G2.6. Date of entry: 02-MAR-2001

SEQ ID NO: 154:Genbank protein 17390185 for C56G2.6. Date of entry: 06-DEC-2001

SEQ ID NO: 155:Genbank DNA BC018084 for C56G2.6. Date of entry: 06-DEC-2001

SEQ ID NO: 156:Genbank protein 4557649 for C56G2.6. Date of entry: 09-FEB-2001
Geissler et al., Nat. Genet. 7 (1), 34-39 (1994); Pubmed: 8075637;
Medline: 94355972

SEQ ID NO: 157:Genbank DNA HSD17B3 for C56G2.6. Date of entry: 09-FEB-2001
Geissler et al., Nat. Genet. 7 (1), 34-39 (1994); Pubmed: 8075637;
Medline: 94355972

SEQ ID NO: 158:D2013.5 ; amino acid sequence from *C. elegans*

SEQ ID NO: 159:D2013.5 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 160:'D2013.5' Forward primer

SEQ ID NO: 161:'D2013.5' Reverse primer

SEQ ID NO: 162:D2013.5 RNAi fragment

SEQ ID NO: 163:Genbank protein 18860841 for D2013.5. Date of entry: 05-NOV-2002
Votruba et al., Hum. Genet. 102 (1), 79-86 (1998); Pubmed: 9490303;
Medline: 98141131
Delettre et al., Nat. Genet. 26 (2), 207-210 (2000); Pubmed: 11017079;
Medline: 20472323
Alexander et al., Nat. Genet. 26 (2), 211-215 (2000); Pubmed: 11017080;
Medline: 20472324
Delettre et al., Hum. Genet. 109 (6), 584-591 (2001); Pubmed: 11810270;
Medline: 21668183

SEQ ID NO: 164:Genbank DNA OPA1 for D2013.5. Date of entry: 05-NOV-2002

Votruba et al., Hum. Genet. 102 (1), 79-86 (1998); Pubmed: 9490303; Medline: 98141131

Delettre et al., Nat. Genet. 26 (2), 207-210 (2000); Pubmed: 11017079; Medline: 20472323

Alexander et al., Nat. Genet. 26 (2), 211-215 (2000); Pubmed: 11017080; Medline: 20472324

Delettre et al., Hum. Genet. 109 (6), 584-591 (2001); Pubmed: 11810270; Medline: 21668183

SEQ ID NO: 165:D2030.4 ; amino acid sequence from *C. elegans*

SEQ ID NO: 166:D2030.4 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 167:'D2030.4' Forward primer

SEQ ID NO: 168:'D2030.4' Reverse primer

SEQ ID NO: 169:D2030.4 RNAi fragment (complement)

SEQ ID NO: 170:Genbank protein 10764847 for D2030.4. Date of entry: 05-NOV-2002

Wong et al., Biochem. Biophys. Res. Commun. 166 (2), 984-992 (1990); Pubmed: 2302251; Medline: 90147818

Emahazion et al., Cytogenet. Cell Genet. 82 (1-2), 115-119 (1998); Pubmed: 9763677; Medline: 98438438

Loeffen et al., Biochem. Biophys. Res. Commun. 253 (2), 415-422 (1998); Pubmed: 9878551; Medline: 99097250

Triepels et al., Hum. Genet. 106 (4), 385-391 (2000); Pubmed: 10830904; Medline: 20289750

SEQ ID NO: 171:Genbank DNA NDUFB7 for D2030.4. Date of entry: 05-NOV-2002

Wong et al., Biochem. Biophys. Res. Commun. 166 (2), 984-992 (1990); Pubmed: 2302251; Medline: 90147818

Emahazion et al., Cytogenet. Cell Genet. 82 (1-2), 115-119 (1998); Pubmed: 9763677; Medline: 98438438

Loeffen et al., Biochem. Biophys. Res. Commun. 253 (2), 415-422 (1998); Pubmed: 9878551; Medline: 99097250

Triepels et al., Hum. Genet. 106 (4), 385-391 (2000); Pubmed: 10830904; Medline: 20289750

SEQ ID NO: 172:E03H4.8 ; amino acid sequence from *C. elegans*

SEQ ID NO: 173:E03H4.8 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 174:'E03H4.8' Forward primer

SEQ ID NO: 175:'E03H4.8' Reverse primer

SEQ ID NO: 176:E03H4.8 RNAi fragment (complement)

SEQ ID NO: 177:Genbank protein 486784 for E03H4.8. Date of entry: 21-JAN-2000
Harrison-Lavoie et al., EMBO J. 12 (7), 2847-2853 (1993); Pubmed: 8335000; Medline: 93327774

SEQ ID NO: 178:Genbank protein 4758032 for E03H4.8. Date of entry: 29-MAY-2002
Harrison-Lavoie et al., EMBO J. 12 (7), 2847-2853 (1993); Pubmed: 8335000; Medline: 93327774
Csukai et al., J. Biol. Chem. 272 (46), 29200-29206 (1997); Pubmed: 9360998; Medline: 98030603
De Baere et al., Cytogenet. Cell Genet. 82 (3-4), 226-227 (1998); Pubmed: 9858824; Medline: 99077761

SEQ ID NO: 179:Genbank DNA COPB2 for E03H4.8. Date of entry: 29-MAY-2002
Harrison-Lavoie et al., EMBO J. 12 (7), 2847-2853 (1993); Pubmed: 8335000; Medline: 93327774
Csukai et al., J. Biol. Chem. 272 (46), 29200-29206 (1997); Pubmed: 9360998; Medline: 98030603
De Baere et al., Cytogenet. Cell Genet. 82 (3-4), 226-227 (1998); Pubmed: 9858824; Medline:

SEQ ID NO: 180:E04A4.7 ; amino acid sequence from *C. elegans*

SEQ ID NO: 181:E04A4.7 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 182:'E04A4.7' Forward primer

SEQ ID NO: 183:'E04A4.7' Reverse primer

SEQ ID NO: 184:E04A4.7 RNAi fragment (complement)

SEQ ID NO: 185:Genbank protein 11128019 for E04A4.7. Date of entry: 23-DEC-2002
Evans and Scarpulla, Proc. Natl. Acad. Sci. U.S.A. 85 (24), 9625-9629 (1988); Pubmed: 2849112; Medline: 89071748
Breitschopf et al., J. Biol. Chem. 275 (28), 21648-21652 (2000); Pubmed: 10801801; Medline: 20347288

Majumder et al., J. Biol. Chem. 275 (29), 21793-21796 (2000); Pubmed: 10818086; Medline: 20357285

Tafani et al., J. Biol. Chem. 277 (12), 10073-10082 (2002); Pubmed: 11790791; Medline: 21895875

SEQ ID NO: 186:Genbank DNA CYCS for E04A4.7. Date of entry: 23-DEC-2002

Evans and Scarpulla, Proc. Natl. Acad. Sci. U.S.A. 85 (24), 9625-9629 (1988); Pubmed: 2849112; Medline: 89071748

Breitschopf et al., J. Biol. Chem. 275 (28), 21648-21652 (2000); Pubmed: 10801801; Medline: 20347288

Majumder et al., J. Biol. Chem. 275 (29), 21793-21796 (2000); Pubmed: 10818086; Medline: 20357285

Tafani et al., J. Biol. Chem. 277 (12), 10073-10082 (2002); Pubmed: 11790791; Medline: 21895875

SEQ ID NO: 187:E04F6.3 ; amino acid sequence from *C. elegans*

SEQ ID NO: 188:E04F6.3 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 189:'E04F6.3' Forward primer

SEQ ID NO: 190:'E04F6.3' Reverse primer

SEQ ID NO: 191:E04F6.3 RNAi fragment

SEQ ID NO: 192:Genbank protein 4504505 for E04F6.3. Date of entry: 05-NOV-2002

Adamski et al., Biochem. J. 311 (Pt 2), 437-443 (1995); Pubmed: 7487879; Medline: 96033037

Leenders et al., Mamm. Genome 9 (12), 1036-1041 (1998); Pubmed: 9880674; Medline: 99099251

SEQ ID NO: 193:Genbank DNA HSD17B4 for E04F6.3

Adamski et al., Biochem. J. 311 (Pt 2), 437-443 (1995); Pubmed: 7487879; Medline: 96033037

Leenders et al., Mamm. Genome 9 (12), 1036-1041 (1998); Pubmed: 9880674; Medline: 99099251

SEQ ID NO: 194:F02E9.7 ; amino acid sequence from *C. elegans*

SEQ ID NO: 195:F02E9.7 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 196:'F02E9.7' Forward primer

SEQ ID NO: 197:'F02E9.7' Reverse primer

SEQ ID NO: 198:F02E9.7 RNAi fragment

SEQ ID NO: 199:Genbank protein 4501873 for F02E9.7. Date of entry: 31-OCT-2000

Ketcham et al., J. Biol. Chem. 264 (1), 557-563 (1989); Pubmed: 2909539; Medline: 89079710

Allen et al., Genomics 4 (4), 597-600 (1989); Pubmed: 2473026; Medline: 89307290

Lord et al., Eur. J. Biochem. 189 (2), 287-293 (1990); Pubmed: 2338077; Medline: 90249371

Grimes et al., Genomics 15 (2), 421-422 (1993); Pubmed: 8449511; Medline: 93194194

Cassady et al., Gene 130 (2), 201-207 (1993); Pubmed: 8359686; Medline: 93366175

Leach et al., Genomics 19 (1), 180-181 (1994); Pubmed: 8188227; Medline: 94245162

SEQ ID NO: 200:Genbank DNA ACP5 for F02E9.7. Date of entry: 31-OCT-2000

Ketcham et al., J. Biol. Chem. 264 (1), 557-563 (1989); Pubmed: 2909539; Medline: 89079710

Allen et al., Genomics 4 (4), 597-600 (1989); Pubmed: 2473026; Medline: 89307290

Lord et al., Eur. J. Biochem. 189 (2), 287-293 (1990); Pubmed: 2338077; Medline: 90249371

Grimes et al., Genomics 15 (2), 421-422 (1993); Pubmed: 8449511; Medline: 93194194

Cassady et al., Gene 130 (2), 201-207 (1993); Pubmed: 8359686; Medline: 93366175

Leach et al., Genomics 19 (1), 180-181 (1994); Pubmed: 8188227; Medline: 94245162

SEQ ID NO: 201:F08F8.2 ; amino acid sequence from *C. elegans*

SEQ ID NO: 202:F08F8.2 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 203:'F08F8.2' Forward primer

SEQ ID NO: 204:'F08F8.2' Reverse primer

SEQ ID NO: 205:F08F8.2 RNAi fragment

SEQ ID NO: 206:Genbank protein 4557643 for F08F8.2. Date of entry: 31-OCT-2000
Luskey and Stevens, J. Biol. Chem. 260 (18), 10271-10277 (1985); Pubmed: 2991281; Medline: 85261451
Humphries et al., Hum. Genet. 71 (3), 254-258 (1985); Pubmed: 2998972; Medline: 86057616
Osborne et al., Cell 42 (1), 203-212 (1985); Pubmed: 3860301; Medline: 85254920
Lindgren et al., Proc. Natl. Acad. Sci. U.S.A. 82 (24), 8567-8571 (1985); Pubmed: 3866240; Medline: 86094264
Ramharack et al., DNA Cell Biol. 9 (9), 677-690 (1990); Pubmed: 1979742; Medline: 91083840
Van Doren et al., Nature 396 (6710), 466-469 (1998); Pubmed: 9853754; Medline: 99068643

SEQ ID NO: 207:Genbank DNA HMGCR for F08F8.2. Date of entry: 31-OCT-2000
Luskey and Stevens, J. Biol. Chem. 260 (18), 10271-10277 (1985); Pubmed: 2991281; Medline: 85261451
Humphries et al., Hum. Genet. 71 (3), 254-258 (1985); Pubmed: 2998972; Medline: 86057616
Osborne et al., Cell 42 (1), 203-212 (1985); Pubmed: 3860301; Medline: 85254920
Lindgren et al., Proc. Natl. Acad. Sci. U.S.A. 82 (24), 8567-8571 (1985); Pubmed: 3866240; Medline: 86094264
Ramharack et al., DNA Cell Biol. 9 (9), 677-690 (1990); Pubmed: 1979742; Medline: 91083840
Van Doren et al., Nature 396 (6710), 466-469 (1998); Pubmed: 9853754; Medline: 99068643

SEQ ID NO: 208:Genbank protein 7245353 for F08F8.2. Date of entry: 30-DEC-1999
Istvan et al., EMBO J. 19 (5), 819-830 (2000); Pubmed: 10698924; Medline: 20164450

SEQ ID NO: 209:F13D11.2 ; amino acid sequence from *C. elegans*

SEQ ID NO: 210:F13D11.2 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 211:'F13D11.2' Forward primer

SEQ ID NO: 212:'F13D11.2' Reverse primer

SEQ ID NO: 213:F13D11.2 RNAi fragment

SEQ ID NO: 214:Genbank protein 21754722 for F13D11.2. Date of entry: 15-JUL-2002

SEQ ID NO: 215:Genbank DNA AK095463 for F13D11.2. Date of entry: 15-JUL-2002

SEQ ID NO: 216:Genbank protein 24899180 for F13D11.2. Date of entry: 12-NOV-2002

SEQ ID NO: 217:Genbank DNA AB095928 for F13D11.2. Date of entry: 12-NOV-2002

SEQ ID NO: 218:F14H8.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 219:F14H8.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 220:'F14H8.1' Forward primer

SEQ ID NO: 221:'F14H8.1' Reverse primer

SEQ ID NO: 222:F14H8.1 RNAi fragment (complement)

SEQ ID NO: 223:Genbank protein 17529997 for F14H8.1. Date of entry: 12-DEC-2001
Jaworski et al., Genomics 78 (3), 185-196 (2001) PUBMED 11735225

SEQ ID NO: 224:Genbank DNA AF392449 for F14H8.1. Date of entry: 12-DEC-2001
Jaworski et al., Genomics 78 (3), 185-196 (2001) PUBMED 11735225

SEQ ID NO: 225:Genbank protein 19718741 for F14H8.1. Date of entry: 15-JAN-2003
Xu et al., J. Biol. Chem. 276 (21), 18407-18414 (2001); Pubmed: 11279184; Medline: 21264638
Lehto et al., J. Lipid Res. 42 (8), 1203-1213 (2001); Pubmed: 11483621; Medline: 21376257
Jaworski et al., Genomics 78 (3), 185-196 (2001); Pubmed: 11735225; Medline: 21601154

SEQ ID NO: 226:Genbank DNA OSBPL1A for F14H8.1. Date of entry: 15-JAN-2003
Xu et al., J. Biol. Chem. 276 (21), 18407-18414 (2001); Pubmed: 11279184; Medline: 21264638
Lehto et al., J. Lipid Res. 42 (8), 1203-1213 (2001); Pubmed: 11483621; Medline: 21376257
Jaworski et al., Genomics 78 (3), 185-196 (2001); Pubmed: 11735225; Medline: 21601154

SEQ ID NO: 227:F25D7.3 ; amino acid sequence from *C. elegans*

SEQ ID NO: 228:F25D7.3 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 229:'F25D7.3' Forward primer

SEQ ID NO: 230:'F25D7.3' Reverse primer

SEQ ID NO: 231:F25D7.3 RNAi fragment

SEQ ID NO: 232:Genbank protein 4557363 for F25D7.3. Date of entry: 05-NOV-2002
Keller and Maniatis, Genes Dev. 5 (5), 868-879 (1991); Pubmed: 1851123; Medline: 91224495
Huang, Cell 78 (1), 9 (1994); Pubmed: 8033216; Medline: 94306522
Mock et al., Genomics 37 (1), 24-28 (1996); Pubmed: 8921366; Medline: 97079655

SEQ ID NO: 233:Genbank DNA PRDM1 for F25D7.3. Date of entry: 05-NOV-2002
Keller and Maniatis, Genes Dev. 5 (5), 868-879 (1991); Pubmed: 1851123; Medline: 91224495
Huang, Cell 78 (1), 9 (1994); Pubmed: 8033216; Medline: 94306522
Mock et al., Genomics 37 (1), 24-28 (1996); Pubmed: 8921366; Medline: 97079655

SEQ ID NO: 234:Genbank protein 4455442 for F25D7.3. Date of entry: 23-NOV-1999

SEQ ID NO: 235:F35H10.4 ; amino acid sequence from *C. elegans*

SEQ ID NO: 236:F35H10.4 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 237:'F35H10.4' Forward primer

SEQ ID NO: 238:'F35H10.4' Reverse primer

SEQ ID NO: 239:F35H10.4 RNAi fragment

SEQ ID NO: 240:Genbank protein 21619070 for F35H10.4. Date of entry: 27-JUN-2002

SEQ ID NO: 241:Genbank DNA BC032398 for F35H10.4. Date of entry: 27-JUN-2002

SEQ ID NO: 242:Genbank protein 19913418 for F35H10.4. Date of entry: 28-MAY-2002
Brody et al., Genomics 25 (1), 238-247 (1995); Pubmed: 7774924; Medline: 95293378
Finbow and Harrison, Biochem. J. 324 (Pt 3), 697-712 (1997); Pubmed: 9210392; Medline: 97327715
Stevens and Forgac, Annu Rev Cell Dev Biol 13, 779-808 (1997); Pubmed: 9442887; Medline: 98105098
Kane, J. Bioenerg. Biomembr. 31 (1), 3-5 (1999); Pubmed: 10340843; Medline: 99270691

Nelson and Harvey, Physiol. Rev. 79 (2), 361-385 (1999); Pubmed: 10221984; Medline: 99238916

Forgac,M., J. Biol. Chem. 274 (19), 12951-12954 (1999); Pubmed: 10224039; Medline: 99240666

Wieczorek et al., Bioessays 21 (8), 637-648 (1999); Pubmed: 10440860; Medline: 99369629

SEQ ID NO: 243:Genbank DNA ATP6V0A1 for F35H10.4. Date of entry: 28-MAY-2002

Brody et al., Genomics 25 (1), 238-247 (1995); Pubmed: 7774924; Medline: 95293378

Finbow and Harrison, Biochem. J. 324 (Pt 3), 697-712 (1997); Pubmed: 9210392; Medline: 97327715

Stevens and Forgac, Annu Rev Cell Dev Biol 13, 779-808 (1997); Pubmed: 9442887; Medline: 98105098

Kane, J. Bioenerg. Biomembr. 31 (1), 3-5 (1999); Pubmed: 10340843; Medline: 99270691

Nelson and Harvey, Physiol. Rev. 79 (2), 361-385 (1999); Pubmed: 10221984; Medline: 99238916

Forgac,M., J. Biol. Chem. 274 (19), 12951-12954 (1999); Pubmed: 10224039; Medline: 99240666

Wieczorek et al., Bioessays 21 (8), 637-648 (1999); Pubmed: 10440860; Medline: 99369629

SEQ ID NO: 244:F38H4.9 ; amino acid sequence from *C. elegans*

SEQ ID NO: 245:F38H4.9 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 246:'F38H4.9' Forward primer

SEQ ID NO: 247:'F38H4.9' Reverse primer

SEQ ID NO: 248:F38H4.9 RNAi fragment

SEQ ID NO: 249:Genbank protein 4758952 for F38H4.9. Date of entry: 01-NOV-2000

Hemmings et al., Nucleic Acids Res. 16 (23), 11366 (1988); Pubmed: 2849765; Medline: 89083568

Khew-Goodall et al., Biochemistry 30 (1), 89-97 (1991); Pubmed: 1846293; Medline: 91105105

Jones et al., Cytogenet. Cell Genet. 63 (1), 35-41 (1993); Pubmed: 8383590; Medline: 93193473

SEQ ID NO: 250:Genbank DNA PPP2CB for F38H4.9. Date of entry: 01-NOV-2000
Hemmings et al., Nucleic Acids Res. 16 (23), 11366 (1988); Pubmed: 2849765; Medline: 89083568
Khew-Goodall et al., Biochemistry 30 (1), 89-97 (1991); Pubmed: 1846293; Medline: 91105105
Jones et al., Cytogenet. Cell Genet. 63 (1), 35-41 (1993); Pubmed: 8383590; Medline: 93193473

SEQ ID NO: 251:F48E8.5 ; amino acid sequence from *C. elegans*

SEQ ID NO: 252:F48E8.5 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 253:'F48E8.5' Forward primer

SEQ ID NO: 254:'F48E8.5' Reverse primer

SEQ ID NO: 255:F48E8.5 RNAi fragment

SEQ ID NO: 256:Genbank protein 21361399 for F48E8.5. Date of entry: 05-NOV-2002
Hemmings et al., Biochemistry 29 (13), 3166-3173 (1990); Pubmed: 2159327; Medline: 90241887

SEQ ID NO: 257:Genbank DNA PPP2R1A for F48E8.5. Date of entry: 05-NOV-2002
Hemmings et al., Biochemistry 29 (13), 3166-3173 (1990); Pubmed: 2159327; Medline: 90241887

SEQ ID NO: 258:F48F7.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 259:F48F7.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 260:'F48F7.1' Forward primer

SEQ ID NO: 261:'F48F7.1' Reverse primer

SEQ ID NO: 262:F48F7.1 RNAi fragment

SEQ ID NO: 263:Genbank protein 6912352 for F48F7.1. Date of entry: 05-NOV-2002
Koesters et al., Genomics 61 (2), 210-218 (1999); Pubmed: 10534406; Medline: 20005943

SEQ ID NO: 264:Genbank DNA EIF2C1 for F48F7.1. Date of entry: 05-NOV-2002
Koesters et al., Genomics 61 (2), 210-218 (1999); Pubmed: 10534406; Medline: 20005943

SEQ ID NO: 265:Genbank protein 19879661 for F48F7.1. Date of entry: 01-APR-2002

Mourelatos et al., Genes Dev. 16 (6), 720-728 (2002); Pubmed: 11914277; Medline: 21912064

SEQ ID NO: 266:Genbank DNA AY077717 for F48F7.1. Date of entry: 01-APR-2002 Mourelatos et al., Genes Dev. 16 (6), 720-728 (2002); Pubmed: 11914277; Medline: 21912064

SEQ ID NO: 267:Genbank protein 13376275 for F48F7.1. Date of entry: 23-DEC-2002 Carmell et al., Genes Dev. 16 (21), 2733-2742 (2002); Pubmed: 12414724; Medline: 22301763

SEQ ID NO: 268:Genbank DNA AGO3 for F48F7.1. Date of entry: 23-DEC-2002 Carmell et al., Genes Dev. 16 (21), 2733-2742 (2002); Pubmed: 12414724; Medline: 22301763

SEQ ID NO: 269:Genbank protein 10047199 for F48F7.1. Date of entry: 22-FEB-2001 Nagase et al., DNA Res. 7 (4), 273-281 (2000); Pubmed: 10997877; Medline: 20450683

SEQ ID NO: 270:Genbank DNA AB046787 for F48F7.1. Date of entry: 22-FEB-2001 Nagase et al., DNA Res. 7 (4), 273-281 (2000); Pubmed: 10997877; Medline: 20450683

SEQ ID NO: 271:Genbank protein 12313910 for F48F7.1. Date of entry: 08-JAN-2001

SEQ ID NO: 272:Genbank protein 24307941 for F48F7.1. Date of entry: 24-OCT-2002 Koesters et al., Genomics 61 (2), 210-218 (1999); Pubmed: 10534406; Medline: 20005943

SEQ ID NO: 273:Genbank DNA EIF2C2 for F48F7.1. Date of entry: 24-OCT-2002 Koesters et al., Genomics 61 (2), 210-218 (1999); Pubmed: 10534406; Medline: 20005943

SEQ ID NO: 274:F54D8.3 ; amino acid sequence from *C. elegans*

SEQ ID NO: 275:F54D8.3 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 276:'F54D8.3', 'F54D8.3a' Forward primer

SEQ ID NO: 277:'F54D8.3', 'F54D8.3a' Reverse primer

SEQ ID NO: 278:F54D8.3 RNAi fragment

SEQ ID NO: 279:Genbank protein 25777732 for F54D8.3. Date of entry: 27-NOV-2002 Yoshida et al., Alcohol 2 (1), 103-106 (1985); Pubmed: 4015823; Medline: 85252089

Hsu et al., Proc. Natl. Acad. Sci. U.S.A. 82 (11), 3771-3775 (1985); Pubmed: 2987944; Medline: 85216574

Hempel et al., Eur. J. Biochem. 153 (1), 13-28 (1985); Pubmed: 4065146; Medline: 86055846

Braun et al., Hum. Genet. 73 (4), 365-367 (1986); Pubmed: 3017845; Medline: 86302539

Braun et al., Nucleic Acids Res. 15 (7), 3179 (1987); Pubmed: 3562250; Medline: 87174836

Braun et al., FEBS Lett. 215 (2), 233-236 (1987); Pubmed: 3582651; Medline: 87219091

Agarwal and Goedde, Isozymes Curr. Top. Biol. Med. Res. 16, 21-48 (1987); Pubmed: 3610592; Medline: 87279033

Hsu et al., Genomics 2 (1), 57-65 (1988); Pubmed: 2838413; Medline: 88256152

Crabb et al., J. Clin. Invest. 83 (1), 314-316 (1989); Pubmed: 2562960; Medline: 89093436

Yoshida, Pharmacogenetics 2 (4), 139-147 (1992); Pubmed: 1306115; Medline: 93306339

Xiao et al., J. Clin. Invest. 98 (9), 2027-2032 (1996); Pubmed: 8903321; Medline: 97060286

Ni et al., Protein Sci. 8 (12), 2784-2790 (1999); Pubmed: 10631996; Medline: 20095857

SEQ ID NO: 280: Genbank DNA ALDH2 for F54D8.3. Date of entry: 27-NOV-2002

Yoshida et al., Alcohol 2 (1), 103-106 (1985); Pubmed: 4015823; Medline: 85252089

Hsu et al., Proc. Natl. Acad. Sci. U.S.A. 82 (11), 3771-3775 (1985); Pubmed: 2987944; Medline: 85216574

Hempel et al., Eur. J. Biochem. 153 (1), 13-28 (1985); Pubmed: 4065146; Medline: 86055846

Braun et al., Hum. Genet. 73 (4), 365-367 (1986); Pubmed: 3017845; Medline: 86302539

Braun et al., Nucleic Acids Res. 15 (7), 3179 (1987); Pubmed: 3562250; Medline: 87174836

Braun et al., FEBS Lett. 215 (2), 233-236 (1987); Pubmed: 3582651; Medline: 87219091

Agarwal and Goedde, Isozymes Curr. Top. Biol. Med. Res. 16, 21-48 (1987); Pubmed: 3610592; Medline: 87279033

Hsu et al., Genomics 2 (1), 57-65 (1988); Pubmed: 2838413; Medline: 88256152

Crabb et al., J. Clin. Invest. 83 (1), 314-316 (1989); Pubmed: 2562960; Medline: 89093436

Yoshida, Pharmacogenetics 2 (4), 139-147 (1992); Pubmed: 1306115; Medline: 93306339

Xiao et al., J. Clin. Invest. 98 (9), 2027-2032 (1996); Pubmed: 8903321; Medline: 97060286

Ni et al., Protein Sci. 8 (12), 2784-2790 (1999); Pubmed: 10631996; Medline: 20095857

SEQ ID NO: 281:Genbank protein 6137677 for F54D8.3. Date of entry: 25-AUG-1999

Steinmetz et al., Structure 5 (5), 701-711 (1997); Pubmed: 9195888; Medline: 97341232

Ni et al., Protein Sci. 8 (12), 2784-2790 (1999); Pubmed: 10631996; Medline: 20095857

SEQ ID NO: 282:Genbank protein 178390 for F54D8.3. Date of entry: 31-OCT-1994

Hsu et al., Genomics 2 (1), 57-65 (1988); Pubmed: 2838413; Medline: 88256152

SEQ ID NO: 283:Genbank protein 28608 for F54D8.3. Date of entry: 23-MAR-1995

Braun et al., Nucleic Acids Res. 15 (7), 3179 (1987); Medline: 87174836

SEQ ID NO: 284:Genbank DNA HSALDHIR for F54D8.3. Date of entry: 23-MAR-1995

Braun et al., Nucleic Acids Res. 15 (7), 3179 (1987); Pubmed: 3562250; Medline: 87174836

SEQ ID NO: 285:Genbank protein 28606 for F54D8.3. Date of entry: 12-SEP-1993

Braun et al., FEBS Lett. 215 (2), 233-236 (1987); Pubmed: 3582651; Medline: 87219091

SEQ ID NO: 286:Genbank DNA HSALDHI1 for F54D8.3. Date of entry: 12-SEP-1993
Braun et al., FEBS Lett. 215 (2), 233-236 (1987); Pubmed: 3582651; Medline: 87219091

SEQ ID NO: 287:Genbank protein 105247 for F54D8.3. Date of entry: 03-JUN-2002
Hsu and Chang, J. Biol. Chem. 266 (19), 12257-12265 (1991); Medline: 91286241

SEQ ID NO: 288:Genbank protein 399363 for F54D8.3. Date of entry: 15-JUN-2002
Hsu and Chang, J. Biol. Chem. 266 (19), 12257-12265 (1991); Medline: 91286241
Sherman et al., Hum. Genet. 92 (5), 477-480 (1993); Medline: 94063858

SEQ ID NO: 289:Genbank protein 2183299 for F54D8.3. Date of entry: 01-AUG-1997
Zheng et al., Alcohol. Clin. Exp. Res. 17 (4), 828-831 (1993); Pubmed: 8214422; Medline: 94027752
Kathmann and Lipsky, Biochem. Biophys. Res. Commun. 236 (2), 527-531 (1997); Pubmed: 9240474; Medline: 97382470

SEQ ID NO: 290:Genbank DNA AF003341 for F54D8.3. Date of entry: 01-AUG-1997
Zheng et al., Alcohol. Clin. Exp. Res. 17 (4), 828-831 (1993); Pubmed: 8214422; Medline: 94027752
Kathmann. and Lipsky, Biochem. Biophys. Res. Commun. 236 (2), 527-531 (1997); Pubmed: 9240474; Medline: 97382470

SEQ ID NO: 291:F55F10.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 292:F55F10.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 293:'F55F10.1' Forward primer

SEQ ID NO: 294:'F55F10.1' Reverse primer

SEQ ID NO: 295:F55F10.1 RNAi fragment

SEQ ID NO: 296:Genbank protein 24415404 for F55F10.1. Date of entry: 27-OCT-2002
Nagase et al., DNA Res. 4 (2), 141-150 (1997); Pubmed: 9205841; Medline: 97349984
Garbarino and Gibbons, BMC Genomics 3 (1), 18 (2002) PUBMED 12102729

SEQ ID NO: 297:Genbank DNA MDN1 for F55F10.1. Date of entry: 27-OCT-2002

Nagase et al., DNA Res. 4 (2), 141-150 (1997); Pubmed: 9205841; Medline: 97349984

Garbarino and Gibbons, BMC Genomics 3 (1), 18 (2002) PUBMED 12102729

SEQ ID NO: 298:H06O01.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 299:H06O01.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 300:'H06O01.1' Forward primer

SEQ ID NO: 301:'H06O01.1' Reverse primer

SEQ ID NO: 302:H06O01.1 RNAi fragment (complement)

SEQ ID NO: 303:Genbank protein 1585552 for H06O01.1. Date of entry: 16-JUL-1996

Hirano et al, Eur. J. Biochem. 234 (1), 336-342 (1995); Pubmed: 8529662; Medline: 96096758

SEQ ID NO: 304:Genbank protein 2245365 for H06O01.1. Date of entry: 08-JUL-1997

Koivunen et al., Genomics 42 (3), 397-404 (1997); Pubmed: 9205111; Medline: 97349107

SEQ ID NO: 305:Genbank protein 21361657 for H06O01.1. Date of entry: 05-NOV-2002

Bennett et al., Nature 334 (6179), 268-270 (1988). Pubmed: 3398923. Medline: 88288403

Hirano et al., Biochem. Biophys. Res. Commun. 204 (1), 375-382 (1994); Pubmed: 7945384; Medline: 95032122

Bourdi et al., Arch. Biochem. Biophys. 323 (2), 397-403 (1995); Pubmed: 7487104; Medline: 96063616

Hirano et al., Eur. J. Biochem. 234 (1), 336-342 (1995); Pubmed: 8529662; Medline: 96096758

Charnock-Jones et al., Int. J. Biochem. Cell Biol. 28 (1), 81-89 (1996); Pubmed: 8624847; Medline: 96191165.

Koivunen et al., Biochem. J. 316 (Pt 2), 599-605 (1996); Pubmed: 8687406; Medline: 96257756

Oliver et al., Science 275 (5296), 86-88 (1997); Pubmed: 8974399; Medline: 97130102

Koivunen et al., Genomics 42 (3), 397-404 (1997); Pubmed: 9205111; Medline: 97349107

Urade et al., J. Biochem. 122 (4), 834-842 (1997); Pubmed: 9399589; Medline: 98060510

SEQ ID NO: 306:Genbank DNA GRP58 for H06O01.1. Date of entry: 05-NOV-2002

Bennett et al., Nature 334 (6179), 268-270 (1988). Pubmed: 3398923. Medline: 88288403

Hirano et al., Biochem. Biophys. Res. Commun. 204 (1), 375-382 (1994); Pubmed: 7945384; Medline: 95032122

Bourdi et al., Arch. Biochem. Biophys. 323 (2), 397-403 (1995); Pubmed: 7487104; Medline: 96063616

Hirano et al., Eur. J. Biochem. 234 (1), 336-342 (1995); Pubmed: 8529662; Medline: 96096758

Charnock-Jones et al., Int. J. Biochem. Cell Biol. 28 (1), 81-89 (1996); Pubmed: 8624847; Medline: 96191165.

Koivunen et al., Biochem. J. 316 (Pt 2), 599-605 (1996); Pubmed: 8687406; Medline: 96257756

Oliver et al., Science 275 (5296), 86-88 (1997); Pubmed: 8974399; Medline: 97130102

Koivunen et al., Genomics 42 (3), 397-404 (1997); Pubmed: 9205111; Medline: 97349107

Urade et al., J. Biochem. 122 (4), 834-842 (1997); Pubmed: 9399589; Medline: 98060510

SEQ ID NO: 307:K01G5.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 308:K01G5.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 309:'K01G5.1', 'K01G5.1a' Forward primer

SEQ ID NO: 310:'K01G5.1', 'K01G5.1a' Reverse primer

SEQ ID NO: 311:K01G5.1 RNAi fragment (complement)

SEQ ID NO: 312:Genbank protein 5902158 for K01G5.1. Date of entry: 05-NOV-2002

Frattini et al., Gene 192 (2), 291-298 (1997); Pubmed: 9224902; Medline: 97368135

SEQ ID NO: 313:Genbank DNA ZNF183 for K01G5.1. Date of entry: 05-NOV-2002

Frattini et al., Gene 192 (2), 291-298 (1997); Pubmed: 9224902; Medline: 97368135

SEQ ID NO: 314:Genbank protein 17068413 for K01G5.1. Date of entry: 26-NOV-2001

SEQ ID NO: 315:Genbank DNA BC017585 for K01G5.1. Date of entry: 26-NOV-2001

SEQ ID NO: 316:Genbank protein 14532913 for K01G5.1. Date of entry: 22-JUN-2001

SEQ ID NO: 317:Genbank protein 23452529 for K01G5.1. Date of entry: 02-OCT-2002

SEQ ID NO: 318:Genbank DNA AF539427 for K01G5.1. Date of entry: 02-OCT-2002

SEQ ID NO: 319:M04B2.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 320:M04B2.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 321:'M04B2.1' Forward primer

SEQ ID NO: 322:'M04B2.1' Reverse primer

SEQ ID NO: 323:M04B2.1 RNAi fragment

SEQ ID NO: 324:Genbank protein 27478319 for M04B2.1. Date of entry: 03-JAN-2003

SEQ ID NO: 325:Genbank DNA ZNF406 for M04B2.1. Date of entry: 03-JAN-2003

SEQ ID NO: 326:Genbank protein 7959231 for M04B2.1. Date of entry: 22-FEB-2001
Nagase et al., DNA Res. 7 (2), 143-150 (2000); Pubmed: 10819331; Medline: 20277482

SEQ ID NO: 327:Genbank DNA AB040918 for M04B2.1. Date of entry: 22-FEB-2001
Nagase et al., DNA Res. 7 (2), 143-150 (2000); Pubmed: 10819331; Medline: 20277482

SEQ ID NO: 328:R04B5.4 ; amino acid sequence from *C. elegans*

SEQ ID NO: 329:R04B5.4 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 330:'R04B5.4' Forward primer

SEQ ID NO: 331:'R04B5.4' Reverse primer

SEQ ID NO: 332:R04B5.4 RNAi fragment (complement)

SEQ ID NO: 333:Genbank protein 21361185 for R04B5.4. Date of entry: 05-NOV-2002
Bell et al., Proc. Natl. Acad. Sci. U.S.A. 88 (4), 1484-1488 (1991); Pubmed: 1899928; Medline: 91142197
Chartier et al., Gene 147 (2), 269-272 (1994); Pubmed: 7926813; Medline: 95011627
Drewes et al., Mol. Cell. Biol. 16 (3), 925-931 (1996); Pubmed: 8622695; Medline: 96182096
Kritis et al., Gene 173 (2), 275-280 (1996); Pubmed: 8964514; Medline: 97082982

Yamagata et al., Nature 384 (6608), 458-460 (1996); Pubmed: 8945471; Medline: 97100944

Argyrokastritis et al., Hum. Genet. 99 (2), 233-236 (1997); Pubmed: 9048927; Medline: 97201116

Lindner et al., J. Clin. Invest. 100 (6), 1400-1405 (1997); Pubmed: 9294105; Medline: 97439759

Winter et al, Endocrinol. Metab. Clin. North Am. 28 (4), 765-785 (1999); Pubmed: 10609119; Medline: 20077119

Fossey et al., Genomics 76 (1-3), 45-57 (2001); Pubmed: 11549316; Medline: 21433822

SEQ ID NO: 334:Genbank DNA HNF4A for R04B5.4. Date of entry: 05-NOV-2002

Bell et al., Proc. Natl. Acad. Sci. U.S.A. 88 (4), 1484-1488 (1991); Pubmed: 1899928; Medline: 91142197

Chartier et al., Gene 147 (2), 269-272 (1994); Pubmed: 7926813; Medline: 95011627

Drewes et al., Mol. Cell. Biol. 16 (3), 925-931 (1996); Pubmed: 8622695; Medline: 96182096

Kritis et al., Gene 173 (2), 275-280 (1996); Pubmed: 8964514; Medline: 97082982

Yamagata et al., Nature 384 (6608), 458-460 (1996); Pubmed: 8945471; Medline: 97100944

Argyrokastritis et al., Hum. Genet. 99 (2), 233-236 (1997); Pubmed: 9048927; Medline: 97201116

Lindner et al., J. Clin. Invest. 100 (6), 1400-1405 (1997); Pubmed: 9294105; Medline: 97439759

Winter et al, Endocrinol. Metab. Clin. North Am. 28 (4), 765-785 (1999); Pubmed: 10609119; Medline: 20077119

Fossey et al., Genomics 76 (1-3), 45-57 (2001); Pubmed: 11549316; Medline: 21433822

SEQ ID NO: 335:R13G10.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 336:R13G10.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 337:'R13G10.1' Forward primer

SEQ ID NO: 338:'R13G10.1' Reverse primer

SEQ ID NO: 339:R13G10.1 RNAi fragment (complement)

SEQ ID NO: 340:Genbank protein 4092846 for R13G10.1. Date of entry: 01-MAY-1999 Nishiwaki et al., J. Hum. Genet. 44 (3), 197-202 (1999); Pubmed: 10319587; Medline: 99253145

SEQ ID NO: 341:Genbank DNA AB019987 for R13G10.1. Date of entry: 01-MAY-1999 Nishiwaki et al., J. Hum. Genet. 44 (3), 197-202 (1999); Pubmed: 10319587; Medline: 99253145

SEQ ID NO: 342:Genbank protein 21739524 for R13G10.1. Date of entry: 12-JUL-2002

SEQ ID NO: 343:Genbank DNA HSM805132 for R13G10.1. Date of entry: 12-JUL-2002

SEQ ID NO: 344:Genbank protein 3851586 for R13G10.1. Date of entry: 10-NOV-1998 Schmiesing et al, Proc. Natl. Acad. Sci. U.S.A. 95 (22), 12906-12911 (1998); Pubmed: 9789013;

SEQ ID NO: 345:Genbank DNA AF092564 for R13G10.1. Date of entry: 10-NOV-1998 Schmiesing et al., Proc. Natl. Acad. Sci. U.S.A. 95 (22), 12906-12911 (1998); Pubmed: 9789013; Medline: 99007239

SEQ ID NO: 346:T05B4.2 ; amino acid sequence from *C. elegans*

SEQ ID NO: 347:T05B4.2 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 348:'T05B4.2' Forward primer

SEQ ID NO: 349:'T05B4.2' Reverse primer

SEQ ID NO: 350:T05B4.2 RNAi fragment

SEQ ID NO: 351:Genbank protein 11094663 for T05B4.2. Date of entry: 04-NOV-2000

SEQ ID NO: 352:Genbank protein 586092 for T05B4.2. Date of entry: 15-JUN-2002 Weinberger et al., Nature 324 (6098), 641-646 (1986); Medline: 87090375 Weinberger et al., Cold Spring Harb. Symp. Quant. Biol. 51 Pt 2, 759-772 (1986); Medline: 87217099 Sakurai et al., Mol. Cell. Endocrinol. 71 (2), 83-91 (1990); Medline: 90330093 Rastinejad et al, Nature 375 (6528), 203-211 (1995); Medline: 95265100 Behr and Loos, Mol. Endocrinol. 6 (7), 1119-1126 (1992); Medline: 92375106 Geffner et al., J. Clin. Invest. 91 (2), 538-546 (1993); Medline: 93163347

Weiss et al., J. Clin. Invest. 91 (6), 2408-2415 (1993); Medline: 93293972

Parrilla et al., J. Clin. Invest. 88 (6), 2123-2130 (1991); Medline: 92091527

Cugini et al., J. Clin. Endocrinol. Metab. 74 (5), 1164-1170 (1992); Medline: 92235228

Usala et al., Mol. Endocrinol. 5 (3), 327-335 (1991); Medline: 91367177

Usala et al., J. Clin. Endocrinol. Metab. 72 (1), 32-38 (1991); Medline: 91093384

Adams et al., Clin. Endocrinol. (Oxf) 36 (3), 281-289 (1992); Medline: 92224389

Sakurai et al., Proc. Natl. Acad. Sci. U.S.A. 86 (22), 8977-8981 (1989); Medline: 90046913

Sasaki et al., Mol. Cell. Endocrinol. 84 (3), 159-166 (1992); Medline: 92267240

Weiss et al., J. Clin. Endocrinol. Metab. 78 (5), 1253-1256 (1994); Medline: 94230698

Usala et al., J. Clin. Invest. 85 (1), 93-100 (1990); Medline: 90110504

Shuto et al., J. Clin. Endocrinol. Metab. 75 (1), 213-217 (1992); Medline: 92317298

Refetoff et al., Thyroid 4 (3), 249-254 (1994); Medline: 95135119

Pohlenz et al., Hum. Mutat. 7 (1), 79-81 (1996); Medline: 96263746

Seto and Weintraub, Hum. Mutat. 8 (3), 247-257 (1996); Medline: 97044513

Menzaghi et al., Hum. Mutat. 12 (4), 289 (1998); Medline: 20123078

SEQ ID NO: 353:Genbank protein 88645 for T05B4.2. Date of entry: 20-SEP-1999

Giguere at al., Nature 331 (6151), 91-94 (1988); Medline: 88122546

SEQ ID NO: 354:T06E6.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 355:T06E6.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 356:'T06E6.1' Forward primer

SEQ ID NO: 357:'T06E6.1' Reverse primer

SEQ ID NO: 358:T06E6.1 RNAi fragment (complement)

SEQ ID NO: 359:Genbank protein 8922422 for T06E6.1. Date of entry: 23-DEC-2002

SEQ ID NO: 360:Genbank DNA FLJ10439 for T06E6.1. Date of entry: 23-DEC-2002

SEQ ID NO: 361:Genbank protein 13623493 for T06E6.1. Date of entry: 12-JUL-2001

SEQ ID NO: 362:Genbank DNA BC006351 for T06E6.1. Date of entry: 12-JUL-2001

SEQ ID NO: 363:T07C4.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 364:T07C4.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 365:'T07C4.1' Forward primer

SEQ ID NO: 366:'T07C4.1' Reverse primer

SEQ ID NO: 367:T07C4.1 RNAi fragment (complement)

SEQ ID NO: 368:Genbank protein 2081620 for T07C4.1. Date of entry: 28-MAY-1999
Suchi et al., Am. J. Hum. Genet. 60 (3), 525-539 (1997); Pubmed: 9042911; Medline: 97195538

SEQ ID NO: 369:Genbank DNA D86227 for T07C4.1. Date of entry: 28-MAY-1999
Suchi et al., Am. J. Hum. Genet. 60 (3), 525-539 (1997); Pubmed: 9042911; Medline: 97195538

SEQ ID NO: 370:T14G10.5 ; amino acid sequence from *C. elegans*

SEQ ID NO: 371:T14G10.5 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 372:'T14G10.5' Forward primer

SEQ ID NO: 373:'T14G10.5' Reverse primer

SEQ ID NO: 374:T14G10.5 RNAi fragment

SEQ ID NO: 375:Genbank protein 6912320 for T14G10.5. Date of entry: 02-NOV-2000
Blagitko et al., Hum. Mol. Genet. 8 (13), 2387-2396 (1999); Pubmed: 10556286; Medline: 20025747

SEQ ID NO: 376:Genbank DNA COPG2 for T14G10.5. Date of entry: 02-NOV-2000
Blagitko et al., Hum. Mol. Genet. 8 (13), 2387-2396 (1999); Pubmed: 10556286; Medline: 20025747

SEQ ID NO: 377:Genbank protein 11559929 for T14G10.5. Date of entry: 23-DEC-2002
Hahn et al., FEBS Lett. 482 (1-2), 31-36 (2000); Pubmed: 11018518; Medline: 20472554
Futatsumori et al., J. Biochem. 128 (5), 793-801 (2000); Pubmed: 11056392; Medline: 20512057
Bermak et al., Eur. J. Cell Biol. 81 (2), 77-85 (2002); Pubmed: 11893085; Medline: 21889771

SEQ ID NO: 378:Genbank DNA COPG for T14G10.5. Date of entry: 23-DEC-2002

Hahn et al., FEBS Lett. 482 (1-2), 31-36 (2000); Pubmed: 11018518; Medline: 20472554

Futatsumori et al., J. Biochem. 128 (5), 793-801 (2000); Pubmed: 11056392; Medline: 20512057

Bermak et al., Eur. J. Cell Biol. 81 (2), 77-85 (2002); Pubmed: 11893085; Medline: 21889771

SEQ ID NO: 379:Genbank protein 16924305 for T14G10.5. Date of entry: 14-NOV-2001

SEQ ID NO: 380:Genbank DNA BC017443 for T14G10.5. Date of entry: 14-NOV-2001

SEQ ID NO: 381:Genbank protein 10434610 for T14G10.5. Date of entry: 01-AUG-2002

SEQ ID NO: 382:Genbank DNA AK022934 for T14G10.5. Date of entry: 01-AUG-2002

SEQ ID NO: 383:W09C5.8 ; amino acid sequence from *C. elegans*

SEQ ID NO: 384:W09C5.8 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 385:'W09C5.8' Forward primer

SEQ ID NO: 386:'W09C5.8' Reverse primer

SEQ ID NO: 387:W09C5.8 RNAi fragment (complement)

SEQ ID NO: 388:Genbank protein 20137886 for W09C5.8. Date of entry: 15-JUN-2002

Huttemann et al., Gene 267 (1), 111-123 (2001); Medline: 21211407

Deloukas et al., Nature 414 (6866), 865-871 (2001); Medline: 21638749

SEQ ID NO: 389:Genbank protein 2809488 for W09C5.8. Date of entry: 26-JAN-1998

Wu et al., J. Mol. Evol. 44 (5), 477-491 (1997); Pubmed: 9115172; Medline: 97277139

SEQ ID NO: 390:Genbank protein 11863734 for W09C5.8. Date of entry: 20-JUL-2001

SEQ ID NO: 391:Y108G3AL.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 392:Y108G3AL.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 393:'Y108G3AL.1', 'W01A6.e' Forward primer

SEQ ID NO: 394:'Y108G3AL.1', 'W01A6.e' Reverse primer

SEQ ID NO: 395:Y108G3AL.1 RNAi fragment

SEQ ID NO: 396:Genbank protein 4503165 for Y108G3AL.1. Date of entry: 23-DEC-2002

Kipreos et al, Cell 85 (6), 829-839 (1996); Pubmed: 8681378; Medline: 96279828

Michel and Xiong, Cell Growth Differ. 9 (6), 435-449 (1998); Pubmed: 9663463; Medline: 98326596

Du et al., J. Biol. Chem. 273 (38), 24289-24292 (1998); Pubmed: 9733711; Medline: 98406061

SEQ ID NO: 397:Genbank DNA CUL3 for Y108G3AL.1. Date of entry: 23-DEC-2002
Kipreos et al, Cell 85 (6), 829-839 (1996); Pubmed: 8681378; Medline: 96279828
Michel and Xiong, Cell Growth Differ. 9 (6), 435-449 (1998); Pubmed: 9663463; Medline: 98326596
Du et al., J. Biol. Chem. 273 (38), 24289-24292 (1998); Pubmed: 9733711; Medline: 98406061

SEQ ID NO: 398:Genbank protein 3139079 for Y108G3AL.1. Date of entry: 22-SEP-1998
Michel and Xiong, Cell Growth Differ. 9 (6), 435-449 (1998); Pubmed: 9663463; Medline: 98326596

SEQ ID NO: 399:Genbank DNA AF062537 for Y108G3AL.1. Date of entry: 22-SEP-1998
Michel and Xiong, Cell Growth Differ. 9 (6), 435-449 (1998); Pubmed: 9663463; Medline: 98326596

SEQ ID NO: 400:Y113G7A.3 ; amino acid sequence from *C. elegans*

SEQ ID NO: 401:Y113G7A.3 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 402:'Y113G7A.3' Forward primer

SEQ ID NO: 403:'Y113G7A.3' Reverse primer

SEQ ID NO: 404:Y113G7A.3 RNAi fragment

SEQ ID NO: 405:Genbank protein 5454042 for Y113G7A.3. Date of entry: 05-NOV-2002
Paccaud et al., Mol. Biol. Cell 7 (10), 1535-1546 (1996); Pubmed: 8898360; Medline: 97053981
Tang et al., Biochem. Biophys. Res. Commun. 258 (3), 679-684 (1999); Pubmed: 10329445; Medline: 99262157

SEQ ID NO: 406:Genbank DNA SEC23A for Y113G7A.3. Date of entry: 05-NOV-2002
Paccaud et al. Mol. Biol. Cell 7 (10), 1535-1546 (1996); Pubmed: 8898360; Medline: 97053981
Tang et al., Biochem. Biophys. Res. Commun. 258 (3), 679-684 (1999); Pubmed: 10329445; Medline: 99262157

SEQ ID NO: 407:Y37D8A.14 ; amino acid sequence from *C. elegans*

SEQ ID NO: 408:Y37D8A.14 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 409:'Y37D8A.14' Forward primer

SEQ ID NO: 410:'Y37D8A.14' Reverse primer

SEQ ID NO: 411:Y37D8A.14 RNAi fragment

SEQ ID NO: 412:Genbank protein 18999392 for Y37D8A.14. Date of entry: 28-FEB-2002

SEQ ID NO: 413:Genbank DNA BC024240 for Y37D8A.14. Date of entry: 28-FEB-2002

SEQ ID NO: 414:Y38F1A.6 ; amino acid sequence from *C. elegans*

SEQ ID NO: 415:Y38F1A.6 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 416:'Y38F1A.6' Forward primer

SEQ ID NO: 417:'Y38F1A.6' Reverse primer

SEQ ID NO: 418:Y38F1A.6 RNAi fragment (complement)

SEQ ID NO: 419:Genbank protein 25989126 for Y38F1A.6. Date of entry: 27-JAN-2003
Deng et al., DNA Seq. 13 (5), 301-306 (2002)

SEQ ID NO: 420:Genbank DNA AY033237 for Y38F1A.6. Date of entry: 27-JAN-2003
Deng et al., DNA Seq. 13 (5), 301-306 (2002)

SEQ ID NO: 421:Genbank protein 21389519 for Y38F1A.6. Date of entry: 12-DEC-2002

SEQ ID NO: 422:Genbank DNA ADH8 for Y38F1A.6. Date of entry: 12-DEC-2002

SEQ ID NO: 423:Y41E3.11 ; amino acid sequence from *C. elegans*

SEQ ID NO: 424:Y41E3.11 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 425:'Y41E3.11' Forward primer

SEQ ID NO: 426:'Y41E3.11' Reverse primer

SEQ ID NO: 427:Y41E3.11 RNAi fragment

SEQ ID NO: 428:Genbank protein 21536326 for Y41E3.11. Date of entry: 15-JAN-2003
Gabler et al., J. Virol. 72 (10), 7960-7971 (1998); Pubmed: 9733834;
Medline: 98406198

SEQ ID NO: 429:Genbank DNA E1B-AP5 for Y41E3.11. Date of entry: 15-JAN-2003
Gabler et al., J. Virol. 72 (10), 7960-7971 (1998); Pubmed: 9733834;
Medline: 98406198

SEQ ID NO: 430:Genbank protein 16041796 for Y41E3.11. Date of entry: 11-OCT-2001

SEQ ID NO: 431:Genbank DNA BC015782 for Y41E3.11. Date of entry: 11-OCT-2001

SEQ ID NO: 432:Y56A3A.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 433:Y56A3A.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 434:'Y56A3A.1' Forward primer

SEQ ID NO: 435:'Y56A3A.1' Reverse primer

SEQ ID NO: 436:Y56A3A.1 RNAi fragment (complement)

SEQ ID NO: 437:Genbank protein 7657387 for Y56A3A.1. Date of entry: 04-NOV-2000
Ishikawa et al., DNA Res. 5 (3), 169-176 (1998); Pubmed: 9734811;
Medline: 98403880
Albert et al., Nucleic Acids Res. 28 (3), 809-817 (2000); Pubmed:
10637334; Medline: 20105461

SEQ ID NO: 438:Genbank DNA CNOT3 for Y56A3A.1. Date of entry: 04-NOV-2000
Ishikawa et al., DNA Res. 5 (3), 169-176 (1998); Pubmed: 9734811;
Medline: 98403880
Albert et al., Nucleic Acids Res. 28 (3), 809-817 (2000); Pubmed:
10637334; Medline: 20105461

SEQ ID NO: 439:Genbank protein 6856205 for Y56A3A.1. Date of entry: 03-FEB-2000
Albert et al., Nucleic Acids Res. 28 (3), 809-817 (2000); Pubmed:
10637334; Medline: 20105461

SEQ ID NO: 440:Genbank DNA AF180474 for Y56A3A.1. Date of entry: 03-FEB-2000
Albert et al. Nucleic Acids Res. 28 (3), 809-817 (2000); Pubmed:
10637334; Medline: 20105461

SEQ ID NO: 441:Y57G11C.15 ; amino acid sequence from *C. elegans*

SEQ ID NO: 442:Y57G11C.15 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 443:'Y57G11C.15' Forward primer

SEQ ID NO: 444:'Y57G11C.15' Reverse primer

SEQ ID NO: 445:Y57G11C.15 RNAi fragment (complement)

SEQ ID NO: 446:Genbank protein 14589847 for Y57G11C.15. Date of entry: 15-JAN-2003
Kawai et al., Nature 409 (6821), 685-690 (2001); Pubmed: 11217851;
Medline: 21085660

SEQ ID NO: 447:Genbank DNA SEC61A2 for Y57G11C.15. Date of entry: 15-JAN-2003
Kawai et al., Nature 409 (6821), 685-690 (2001); Pubmed: 11217851;
Medline: 21085660

SEQ ID NO: 448:Y57G11C.24a ; amino acid sequence from *C. elegans*

SEQ ID NO: 449:Y57G11C.24a ; nucleotide sequence from *C. elegans*

SEQ ID NO: 450:'Y57G11C.24a' Forward primer

SEQ ID NO: 451:'Y57G11C.24a' Reverse primer

SEQ ID NO: 452:Y57G11C.24a RNAi fragment

SEQ ID NO: 453:Genbank protein 10438150 for Y57G11C.24a. Date of entry: 29-SEP-2000

SEQ ID NO: 454:Genbank DNA AK025588 for Y57G11C.24a. Date of entry: 29-SEP-2000

SEQ ID NO: 455:Genbank protein 21264616 for Y57G11C.24a. Date of entry: 23-DEC-2002

SEQ ID NO: 456:Genbank DNA EPS8R2 for Y57G11C.24a. Date of entry: 23-DEC-2002

SEQ ID NO: 457:Genbank protein 21264608 for Y57G11C.24a. Date of entry: 30-MAY-2002
Wu et al., Chung-Hua I Hsueh I Chuan Hsueh Tsa Chih 16 (5), 325-327 (1999); Pubmed: 10514543; Medline: 99445952

SEQ ID NO: 458:Genbank DNA EPS8R1 for Y57G11C.24a; Date of entry: 30-MAY-2002
Wu et al., Chung-Hua I Hsueh I Chuan Hsueh Tsa Chih 16 (5), 325-327 (1999); Pubmed: 10514543; Medline: 99445952

SEQ ID NO: 459:Genbank protein 20988309 for Y57G11C.24a. Date of entry: 20-MAY-2002

SEQ ID NO: 460:Genbank DNA BC030010 for Y57G11C.24a. Date of entry: 20-MAY-2002

SEQ ID NO: 461:Y73F8A.21 ; amino acid sequence from *C. elegans*

SEQ ID NO: 462:Y73F8A.21 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 463:'Y73F8A.21' Forward primer

SEQ ID NO: 464:'Y73F8A.21' Reverse primer

SEQ ID NO: 465:Y73F8A.21 RNAi fragment

SEQ ID NO: 466:Genbank protein 6166208 for Y73F8A.21. Date of entry: 15-JUN-2002
Chartier et al., Gene 147 (2), 269-272 (1994); Medline: 95011627
Kritis et al., Gene 173 (2), 275-280 (1996); Medline: 97082982
Drewes et al., Mol. Cell. Biol. 16 (3), 925-931 (1996); Medline: 96182096
Yamagata et al., Nature 384 (6608), 458-460 (1996); Medline: 97100944
Deloukas et al., Nature 414 (6866), 865-871 (2001); Medline: 21638749
Ktistaki et al., Proc. Natl. Acad. Sci. U.S.A. 92 (21), 9876-9880 (1995); Medline: 96003882
Furuta et al., Diabetes 46 (10), 1652-1657 (1997); Medline: 97458990
Bulman et al., Diabetologia 40 (7), 859-862 (1997); Medline: 97387046
Moller et al., Diabetologia 40 (8), 980-983 (1997); Medline: 97411883

Hani et al., J. Clin. Invest. 101 (3), 521-526 (1998); Medline: 98119841

SEQ ID NO: 467:Y87G2A.8 ; amino acid sequence from *C. elegans*

SEQ ID NO: 468:Y87G2A.8 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 469:'Y87G2A.8' Forward primer

SEQ ID NO: 470:'Y87G2A.8' Reverse primer

SEQ ID NO: 471:Y87G2A.8 RNAi fragment

SEQ ID NO: 472:Genbank protein 14488680 for Y87G2A.8. Date of entry: 23-MAR-2001
Read et al., J. Mol. Biol. 309 (2), 447-463 (2001) PUBMED 11371164

SEQ ID NO: 473:Genbank protein 6653226 for Y87G2A.8. Date of entry: 07-MAY-2002
Yakirevich and Naot, Biol. Reprod. 62 (4), 1016-1023 (2000); Pubmed: 10727272; Medline: 20191561

SEQ ID NO: 474:Genbank DNA AF187554 for Y87G2A.8. Date of entry: 07-MAY-2002
Yakirevich and Naot, Biol. Reprod. 62 (4), 1016-1023 (2000); Pubmed: 10727272; Medline: 20191561

SEQ ID NO: 475:ZK1127.2 ; amino acid sequence from *C. elegans*

SEQ ID NO: 476:ZK1127.2 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 477:'ZK1127.2' Forward primer

SEQ ID NO: 478:'ZK1127.2' Reverse primer

SEQ ID NO: 479:ZK1127.2 RNAi fragment

SEQ ID NO: 480:Genbank protein 13376741 for ZK1127.2. Date of entry: 23-DEC-2002

SEQ ID NO: 481:Genbank DNA FLJ20920 for ZK1127.2. Date of entry: 23-DEC-2002

SEQ ID NO: 482:Genbank protein 22761682 for ZK1127.2. Date of entry: 03-SEP-2002

SEQ ID NO: 483:Genbank DNA AK075499 for ZK1127.2. Date of entry: 03-SEP-2002

SEQ ID NO: 484:Genbank protein 27477047 for ZK1127.2. Date of entry: 03-JAN-2003
Hattori et al., DNA Res. 7 (6), 357-366 (2000); Pubmed: 11214971; Medline: 21082933

SEQ ID NO: 485:Genbank DNA ACAS2L for ZK1127.2. Date of entry: 03-JAN-2003
Hattori et al., DNA Res. 7 (6), 357-366 (2000); Pubmed: 11214971; Medline: 21082933

SEQ ID NO: 486:Genbank protein 16418449 for ZK1127.2. Date of entry: 23-DEC-2002
Fujino et al., J. Biol. Chem. 276 (38), 35961-35966 (2001); Pubmed: 11470804; Medline: 21443789

SEQ ID NO: 487:Genbank DNA BUCS1 for ZK1127.2. Date of entry: 23-DEC-2002
Fujino et al., J. Biol. Chem. 276 (38), 35961-35966 (2001); Pubmed: 11470804; Medline: 21443789

SEQ ID NO: 488:Genbank protein 27651993 for ZK1127.2. Date of entry: 11-JAN-2003
Vessey et al., J. Biochem. Mol. Toxicol. (2003)

SEQ ID NO: 489:Genbank DNA AY160217 for ZK1127.2. Date of entry: 11-JAN-2003
Vessey et al., J. Biochem. Mol. Toxicol. (2003)

SEQ ID NO: 490:ZK1151.1 ; amino acid sequence from *C. elegans*

SEQ ID NO: 491:ZK1151.1 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 492:'ZK1151.1' Forward primer

SEQ ID NO: 493:'ZK1151.1' Reverse primer

SEQ ID NO: 494:ZK1151.1 RNAi fragment (complement)

SEQ ID NO: 495:Genbank protein 4505877 for ZK1151.1. Date of entry: 05-NOV-2002
Liu et al., Proc. Natl. Acad. Sci. U.S.A. 93 (9), 4278-4283 (1996); Pubmed: 8633055; Medline: 96210632
McLean et al., Genes Dev. 10 (14), 1724-1735 (1996); Pubmed: 8698233; Medline: 96312447
Smith et al., Nat. Genet. 13 (4), 450-457 (1996); Pubmed: 8696340; Medline: 96331286
Brown et al., J. Immunol. 167 (2), 641-645 (2001); Pubmed: 11441066; Medline: 21334344

SEQ ID NO: 496:Genbank DNA PLEC1 for ZK1151.1. Date of entry: 05-NOV-2002
Liu et al., Proc. Natl. Acad. Sci. U.S.A. 93 (9), 4278-4283 (1996); Pubmed: 8633055; Medline: 96210632
McLean et al., Genes Dev. 10 (14), 1724-1735 (1996); Pubmed: 8698233; Medline: 96312447
Smith et al., Nat. Genet. 13 (4), 450-457 (1996); Pubmed: 8696340; Medline: 96331286
Brown et al., J. Immunol. 167 (2), 641-645 (2001); Pubmed: 11441066; Medline: 21334344

SEQ ID NO: 497:Genbank protein 14195007 for ZK1151.1. Date of entry: 15-JUN-2002

Liu et al., Proc. Natl. Acad. Sci. U.S.A. 93 (9), 4278-4283 (1996); Medline: 96210632

McLean et al., Genes Dev. 10 (14), 1724-1735 (1996); Medline: 96312447

Pulkkinen et al., Hum. Mol. Genet. 5 (10), 1539-1546 (1996); Medline: 97049959

Bauer et al., Am. J. Pathol. 158 (2), 617-625 (2001); Medline: 21090821

SEQ ID NO: 498:Genbank protein 6273778 for ZK1151.1. Date of entry: 08-NOV-1999

Sun et al., J. Biol. Chem. 274 (47), 33522-33530 (1999); Pubmed: 10559237; Medline: 20026884

SEQ ID NO: 499:Genbank DNA AF141968 for ZK1151.1. Date of entry: 08-NOV-1999

Sun et al., J. Biol. Chem. 274 (47), 33522-33530 (1999); Pubmed: 10559237; Medline: 20026884

SEQ ID NO: 500:Genbank protein 14285345 for ZK1151.1. Date of entry: 15-JUN-2002

Okuda et al., Biochem. Biophys. Res. Commun. 264 (2), 568-574 (1999); Medline: 20001959

Sun et al., J. Biol. Chem. 274 (47), 33522-33530 (1999); Medline: 20026884

Nagase et al., DNA Res. 6 (5), 337-345 (1999); Medline: 20039619

Seki et al., DNA Res. 4 (5), 345-349 (1997); Medline: 98116662

SEQ ID NO: 501:ZK1151.3 ; amino acid sequence from *C. elegans*

SEQ ID NO: 502:ZK1151.3 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 503:'ZK1151.3' Forward primer

SEQ ID NO: 504:'ZK1151.3' Reverse primer

SEQ ID NO: 505:ZK1151.3 RNAi fragment (complement)

SEQ ID NO: 506:Genbank protein 14195007 for ZK1151.3. Date of entry: 15-JUN-2002

Liu et al., Proc. Natl. Acad. Sci. U.S.A. 93 (9), 4278-4283 (1996); Medline: 96210632

McLean et al., Genes Dev. 10 (14), 1724-1735 (1996); Medline: 96312447

Pulkkinen et al., Hum. Mol. Genet. 5 (10), 1539-1546 (1996); Medline: 97049959

Bauer et al., Am. J. Pathol. 158 (2), 617-625 (2001); Medline: 21090821

SEQ ID NO: 507:ZK512.2 ; amino acid sequence from *C. elegans*

SEQ ID NO: 508:ZK512.2 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 509:'ZK512.2' Forward primer

SEQ ID NO: 510:'ZK512.2' Reverse primer

SEQ ID NO: 511:ZK512.2 RNAi fragment (complement)

SEQ ID NO: 512:Genbank protein 20987604 for ZK512.2. Date of entry: 20-MAY-2002

SEQ ID NO: 513:Genbank DNA BC030020 for ZK512.2. Date of entry: 20-MAY-2002

SEQ ID NO: 514:Genbank protein 10047265 for ZK512.2. Date of entry: 22-FEB-2001
Nagase et al., DNA Res. 7 (4), 273-281 (2000); Pubmed: 10997877;
Medline: 20450683

SEQ ID NO: 515:Genbank DNA AB046815 for ZK512.2. Date of entry: 22-FEB-2001
Nagase et al., DNA Res. 7 (4), 273-281 (2000); Pubmed: 10997877;
Medline: 20450683

SEQ ID NO: 516:Genbank protein 13514831 for ZK512.2Date of entry: 15-JAN-2003
Savitsky et al., Genomics 33 (2), 199-206 (1996); Pubmed: 8660968;
Medline: 96301396
Liang et al., Mol. Cell. Biol. 17 (7), 4124-4132 (1997); Pubmed: 9199348;
Medline: 97342651
Ikeda et al., Int. J. Hematol. 69 (3), 160-164 (1999); Pubmed: 10222653;
Medline: 99239159
Nakao et al., Intern. Med. 39 (5), 412-415 (2000); Pubmed: 10830185;
Medline: 20288997

SEQ ID NO: 517:Genbank DNA DDX10 for ZK512.2. Date of entry: 15-JAN-2003
Savitsky et al., Genomics 33 (2), 199-206 (1996); Pubmed: 8660968;
Medline: 96301396
Liang et al., Mol. Cell. Biol. 17 (7), 4124-4132 (1997); Pubmed: 9199348;
Medline: 97342651
Ikeda et al., Int. J. Hematol. 69 (3), 160-164 (1999); Pubmed: 10222653;
Medline: 99239159
Nakao et al., Intern. Med. 39 (5), 412-415 (2000); Pubmed: 10830185;
Medline: 20288997

SEQ ID NO: 518:ZK856.8 ; amino acid sequence from *C. elegans*

SEQ ID NO: 519:ZK856.8 ; nucleotide sequence from *C. elegans*

SEQ ID NO: 520:'ZK856.8' Forward primer

SEQ ID NO: 521:'ZK856.8' Reverse primer

SEQ ID NO: 522:ZK856.8 RNAi fragment (complement)

SEQ ID NO: 523:Genbank protein 6005731 for ZK856.8. Date of entry: 05-NOV-2002
Lin and Barber, Proc. Natl. Acad. Sci. U.S.A. 93 (22), 12631-12636 (1996); Pubmed: 8901634; Medline: 97057295
Lin et al., J. Biol. Chem. 274 (51), 36125-36131 (1999); Pubmed: 10593895; Medline: 20062818
Pang et al., J. Biol. Chem. 276 (20), 17367-17372 (2001); Pubmed: 11350981; Medline: 21248790

SEQ ID NO: 524:Genbank DNA CHP for ZK856.8. Date of entry: 05-NOV-2002
Lin and Barber, Proc. Natl. Acad. Sci. U.S.A. 93 (22), 12631-12636 (1996); Pubmed: 8901634; Medline: 97057295
Lin et al., J. Biol. Chem. 274 (51), 36125-36131 (1999); Pubmed: 10593895; Medline: 20062818
Pang et al., J. Biol. Chem. 276 (20), 17367-17372 (2001); Pubmed: 11350981; Medline: 21248790

SEQ ID NO: 525:Genbank protein 11545811 for ZK856.8. Date of entry: 23-DEC-2002
Wang et al., J. Immunol. 169 (2), 1102-1109 (2002); Pubmed: 12097419; Medline: 22092308

SEQ ID NO: 526:Genbank DNA LOC63928 for ZK856.8. Date of entry: 23-DEC-2002
Wang et al., J. Immunol. 169 (2), 1102-1109 (2002); Pubmed: 12097419; Medline: 22092308.

Each of the patents, patent applications and references that are recited in this application are herein incorporated in their entirety by reference. Having described the presently preferred embodiments, and in accordance with the present invention, it is believed that other modifications, variations and changes will be suggested to those skilled in the art in view of the teachings set forth herein. It is, therefore, to be understood that all such variations, modifications, and changes are believed to fall within the scope of the present invention as defined by the appended claims.

What is claimed is:

CLAIMS

1. Nucleic acid, in essentially isolated form, said nucleic acid encoding one of the amino acid sequences of SEQ ID NO: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, or an analog, variant, allele, ortholog, part and/or fragment of one of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525.

2. Nucleic acid, in essentially isolated form, said nucleic acid comprising one of the nucleotide sequences of SEQ ID NOs: 2, 7, 9, 14, 18, 23, 25, 27, 32, 34, 36, 38, 43, 45, 47, 49, 50, 51, 56, 58, 61, 63, 68, 70, 73, 78, 80, 83, 88, 90, 92, 94, 99, 101, 107, 112, 114, 116, 121, 123, 126, 131, 133, 135, 140, 142, 144, 149, 151, 153, 155, 157, 159, 164, 166, 171, 173, 179, 181, 186, 188, 193, 195, 200, 202, 207, 210, 215, 219, 224, 226, 228, 233, 236, 241, 243, 245, 250, 252, 257, 259, 264, 266, 268, 270, 273, 275, 280, 284, 286, 290, 292,

297, 299, 306, 308, 313, 315, 318, 320, 325, 327, 329, 334, 336, 341, 343, 345, 347, 355, 360, 362, 364, 369, 371, 376, 378, 380, 382, 384, 392, 397, 399, 401, 406, 408, 413, 415, 420, 424, 429, 431, 433, 438, 440, 442, 447, 449, 454, 456, 458, 460, 462, 468, 474, 476, 481, 483, 485, 487, 489, 491, 496, 499, 502, 508, 513, 515, 517, 519, 524 and/or 526, or a mutant, variant, allele, analog, ortholog, part and/or fragment thereof.

3. Genetic construct, comprising the nucleic acid of claim 1 and/or of claim 2, and optionally one or more further elements of genetic constructs known per se.

4. Host cell or host organism, transformed with and/or containing a nucleic acid according to claim 1 and/or claim 2 and/or a genetic construct according to claim 3.

5. Host cell or host organism, (capable of) expressing and/or producing one of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525 or an analog, variant, allele, analog, ortholog, part and/or fragment thereof.

6. Method for producing one of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287,

288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, or an analog, variant, allele, ortholog, part and/or fragment thereof, said method comprising at least the steps of:

a) expressing of a nucleic acid according to claim 1 and/or 2 in a suitable host cell or host organism; and optionally

b) isolating the amino acid sequence thus expressed.

7. Method for producing one of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525 or an analog, variant, allele, ortholog, part and/or fragment thereof, said method comprising at least the steps of:

a) maintaining and/or cultivating a host cell or host organism according to claim 4 or 5 under conditions such that said host cell or host organism expresses or produces one of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298,

303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, or an analog, variant, allele, ortholog, part and/or fragment thereof; and optionally

b) isolating the amino acid sequence thus expressed/produced.

8. Protein or polypeptide, in essentially isolated form, said protein or polypeptide comprising one of the amino acid sequences of SEQ ID NOs: 1, 6, 8, 13, 15, 16,17, 22, 24, 26, 31, 33, 35, 37, 42, 44, 46, 48, 50, 55, 57, 59, 60, 62, 67, 69, 71, 72, 77, 79, 81, 82, 87, 89, 91, 93, 98, 100, 105, 106, 111, 113,115, 120, 122, 124,125, 130, 132, 134, 139, 141, 143, 148, 150, 152, 154, 156,158, 163,165, 170, 172, 177, 178, 180, 185, 187, 192, 194, 199, 201, 206, 208, 209, 214, 216, 218, 223, 225, 227, 235, 232, 234, 240, 242, 244, 249, 251, 256, 258, 274, 263, 265, 267, 269, 271, 272, 279, 281, 282, 283, 285, 287, 288, 289, 291, 296, 298, 303, 304, 305, 307, 312, 314, 316, 317, 319, 328, 333, 335, 340, 342, 344, 346, 351, 352, 353, 354, 359, 361, 363, 368, 370, 375, 377, 379, 381, 383, 388, 389, 390, 391, 396, 398, 400, 405, 407, 412, 414, 419, 422, 423, 428, 430, 432, 437, 439, 441, 446, 448, 461, 453, 455, 457, 459, 453, 455, 457, 459, 467, 472, 473, 475, 480, 482, 484, 486, 488, 490, 495, 497, 498, 501, 500, 506, 507, 512, 514, 516, 518, 523 and/or 525, or an analog, variant, allele, ortholog, part and/or fragment thereof.

9. Method for generating a signal that is representative for the interaction of a protein or polypeptide of claim 8 with a test chemical, said method at least comprising the steps of:

a) contacting a protein or polypeptide of claim 8, or a host cell or host organism of claim 4 or 5, with said test chemical, in such a way that a signal may be generated that is representative for the interaction between said test chemical and said protein or polypeptide; and optionally

b) detecting the signal that may thus be generated.

10. Method for identifying a modulator of a protein or polypeptide of claim 8, for example from a set or library of test chemicals, said method at least comprising the steps of:

a) contacting a protein or polypeptide of claim 8, or a host cell or host organism of claim 4 or 5, with said test chemical, in such a way that a signal may be generated that is representative for the interaction between said test chemical and said protein or polypeptide; and optionally

b) detecting the signal that may thus be generated, said signal identifying a modulator of said amino acid sequence.

11. Modulator of a protein or polypeptide according to claim 8, identified and/or developed using a nucleic acid according to claim 1 and/or 2, a host cell according to claim 4 and/or 5, a protein or polypeptide according to claim 8, and/or a method according to claim 9 and/or 10.

12. Modulator according to claim 11, being an inhibitor of a protein or polypeptide of claim 8.

13. Pharmaceutical composition, comprising at least one modulator according to claim 11 and/or 12 and at least one pharmaceutically acceptable carrier.

14. Pharmaceutical composition according to claim 13, being a composition suitable and/or intended for oral administration.

15. Use of a modulator according to claim 11 and/or 12 in the preparation of a pharmaceutical composition.

16. Use of a modulator according to claim 11 and/or 12 in the preparation of a pharmaceutical composition for the prevention and/or treatment of metabolic diseases.

17. Antibody against a protein or polypeptide according to claim 8.

Figure 1

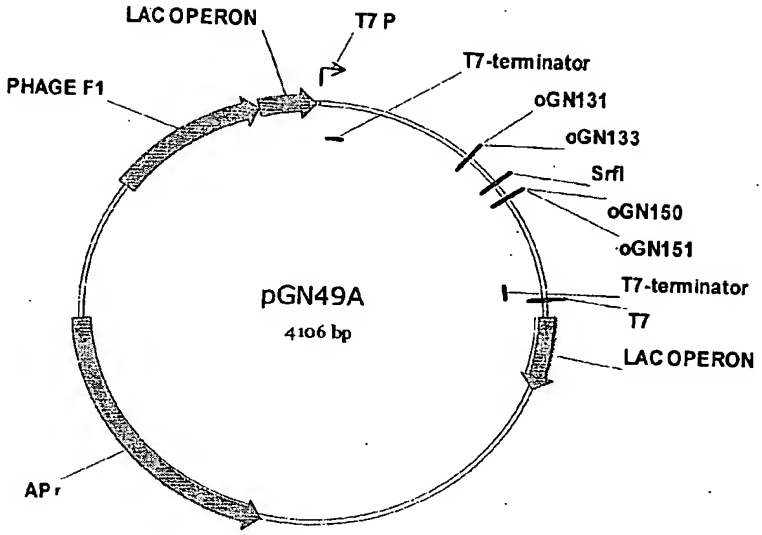
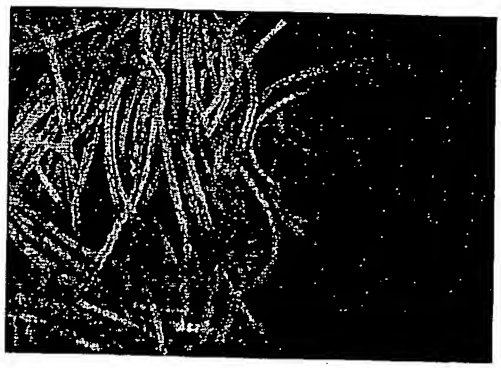


Figure 2A

Figure 2B



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